

CHAPTER I: INTRODUCTION

ABSTRACT

Public markets are known in Filipino as *palengke* which is derived from the Spanish word *Palenque* pertaining to a pathway or cluster of tables set up at some place of gathering such as a theater, tournament or market. This definition is highly evident to the existing physical layout of public markets in the country.

Apart from contributing to the countries booming economy through retailing, public markets today are not only limited to being the place for mere business activities but it also expanded its definition to being the cradle of a town's rich culture, a showcase of the local handcrafted products, fresh and healthy produce, livestock and local delicacies. It had been the haven to the prominent relationship between the entrepreneurs and consumers whose business transactions are now part of the country's individual households.

RATIONALE

Historically, public markets had boosted cultural exchange between the early communities in the Philippines and the neighboring islands. A Filipino legacy that had started off as a trade of different products that is specifically produced in certain localities, which later encouraged migration of groups from one place to another and then resulted to settlements. One can trace a town's history through eyeing the timeline of its public market.

Over the years, it has always been a part of the Philippine culture and had been identified as the center and active place for commerce and trade. Being a fundamental facility in every Filipino town, it had served as a place where the entrepreneurs and consumers conduct their transaction and one that is common is the so-called "*hangyo*" which abled the consumers to avail the goods on a low and affordable price than its suggested market price. This particular activity is popular throughout the country's public markets. Public markets could be considered as the catalysts of the growing local economy since it supports businesses owned by local producers and

entrepreneurs. Some of its potential economic impacts is providing direct benefits such as profit to business owners and entrepreneurs and job creation while its indirect benefits are pertaining to stimulating development downtown, enhancing the park and waterfront as a place and farmland preservation. Public markets, generally, play a vital role in providing the necessities of a typical Filipino household and contributing to the local economy of municipalities.

Along with the development of public markets in towns is the integration of a directly accessible means of transportation serving not only the consumers but also the local producers. Throughout the country, there are a number of public markets that has a complementary transportation terminal which made deliveries of products efficient and made business transactions possible.

With these reasons making a public market a vital need for every hometown, government agencies is obliged to ensure that every municipality or city is provided with a well-planned public market that religiously follows corresponding rules and regulations and is integrated with an accessible transportation terminal to thoroughly facilitate economic activities and transactions.

STATEMENT OF THE PROBLEM

Approximately nine years from the proclamation as a city in the province of Cebu, Carcar has earned its spot to Cebu's growing cities. Apart from the city's rich history which left iconic Spanish-influenced buildings and structures within its territory, the city offers its renowned local delicacies and hand-crafted products such as Carcar lechon, chicharon, ampao, gogorias, bucarillo and the locally made bags and foot wears to name a few. These goods are the pride of the city and are also the basic reason why many tourists local and abroad flock to this city resulting to greater job opportunities for the locals; a clear sign of a growing economy.

Alongside its growing development, the city has been facing several problems regarding the facilities such as its public market where these locally made products and other fresh produce are being sold. The current location of the public market is definitely not suitable especially that

it contributes to the traffic congestion happening around the famous rotunda of the city. Aside from the public market's impact to the city's macro territory, it also has several issues within the facility itself especially in terms of planning and design which is deemed not fit to serve its purpose considering the growing number of consumers in the city. Its zoning has been a clear evidence of a product of years of compromised regulations that the local vendors failed to follow which then resulted to the dingy, unhygienic environment present to the existing market.

Moreover, this study seeks to answer these questions:

1. What are the existing problems in the existing Carcar City public market? What are the corresponding approach to mitigate these problems if there is a need for a relocation of the market?
2. Which site within the vicinity of Carcar City could best serve the purpose of providing a public market with a transportation terminal?
3. Who are the users and how do they affect the proposal?
4. What are the design approaches to be applied in the proposal?

OBJECTIVES OF THE STUDY

The primary objective of this study is to come up with an architectural program that is expected to solve the current situation of the existing public market of Carcar City and the traffic congestion brought by the absence of an established transportation terminal for buses and other public use vehicles. Moreover, this study seeks to:

1. Assess the existing conditions and situation of the existing public market of Carcar City.
2. Distinguish the advantages from the disadvantages of the current layout of the market. Apply the appropriate identified advantages and come up with a solution that will address the listed disadvantages.

3. To select the best site that will serve the purpose of the public market with a transportation terminal.
4. Acquire sufficient knowledge on planning and design of a public market with a transportation terminal.

SIGNIFICANCE OF THE STUDY

The study will primarily benefit the city of Carcar as it aims to provide a possible solution to the issues regarding the public market and the traffic congestion brought about by the absence of a transportation terminal.

The government of Carcar can benefit from this study as it can provide ideas, solutions and plans on public market and generate income for their government and also create job opportunities for their constituents. Also, the study can suggest an answer regarding the traffic congestion through establishing a terminal considering new routes for a better traffic flow.

Farmers, fishermen, local merchants and businessmen can benefit from this study as it will provide them a public market that will not only showcase their products but revitalize the local trade which may have been overshadowed by private shops, supermarkets and malls. Also, the integration of a directly accessible transportation terminal could thoroughly improve business transactions through efficiently supporting transactions going to and through the city.

The architectural community can benefit from this study as it can be a supplemental knowledge in planning and design for public markets with an integrated transportation terminal. Professionals and students who are undergoing similar studies could utilize this study as reference.

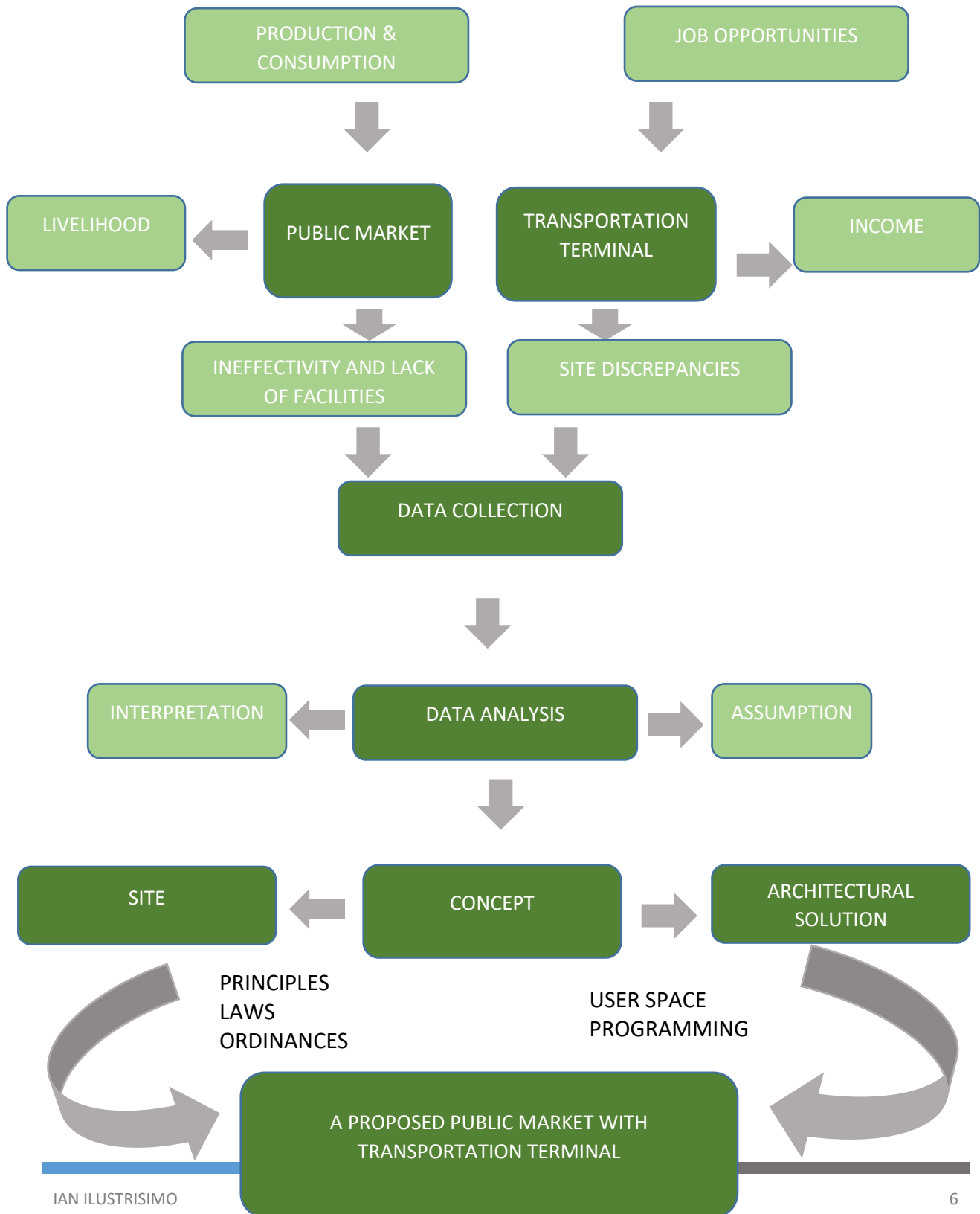
SCOPE AND LIMITATIONS

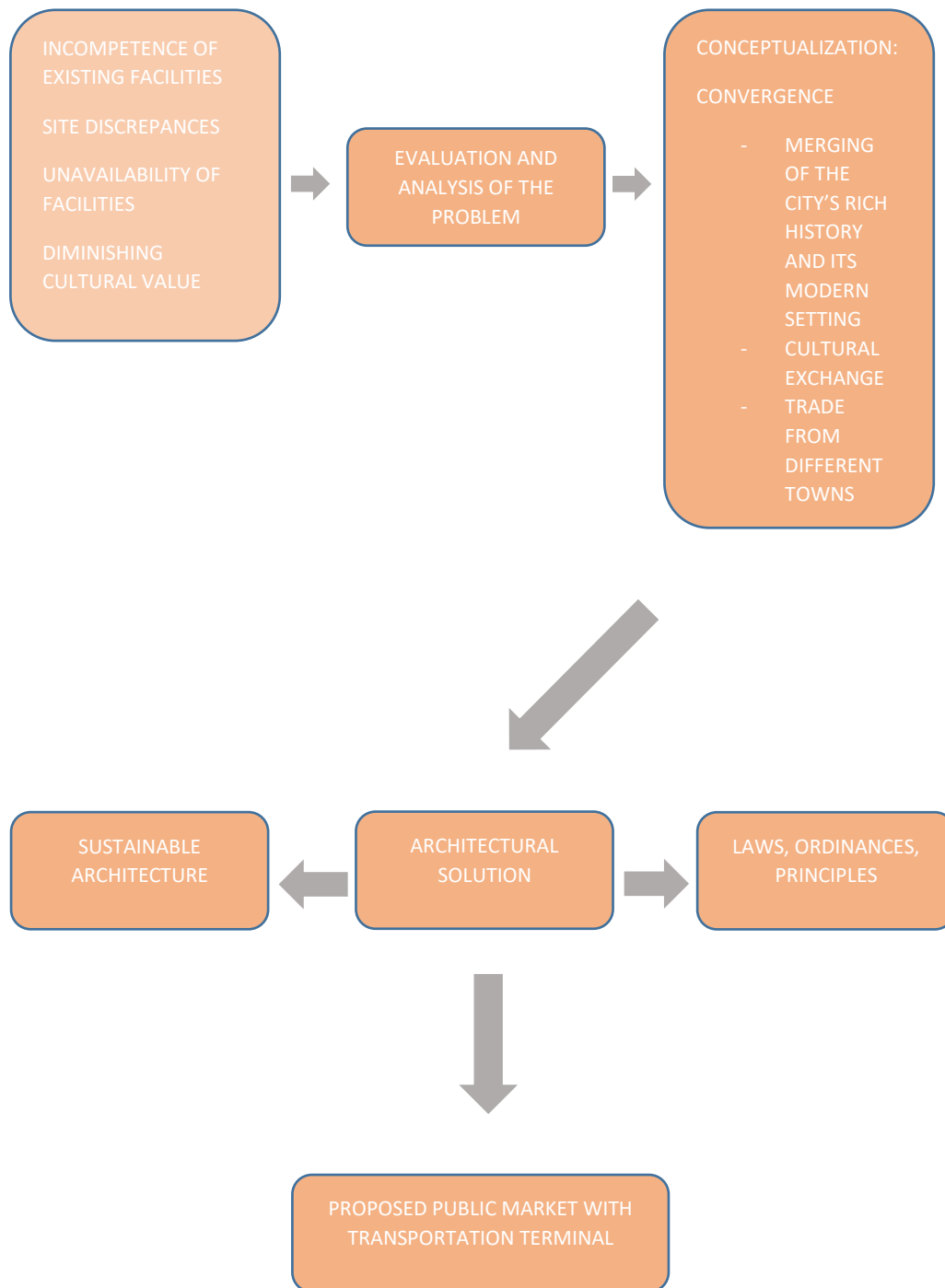
The study is limited to the architectural planning and design of the Carcar City Public Market.

The study will also deal with the efficiency and effectiveness of public markets with transportation terminal developments and assess overall design and planning strategies, specifically the methods and systematic ways that will be adapted to the new public market in the relocation area.

The output of this study will include programming solutions that is established through a careful study on the existing problems. The final design solutions will be presented through architectural drawings. Structural design, utility diagrams, interior design and landscape architecture will also be included.

The study will not include financial and feasibility studies.

THEORETICAL FRAMEWORK

CONCEPTUAL FRAMEWORK

The Conceptual Framework of this study is grounded to identifying first the important matters that needs to be addressed and from those listed problems, evaluation is then executed from which the researchers are able to formulate a concept that will serve as the guiding principle in terms of the generation of the architectural solution. Particularly, the concept is convergence which literally means the merging of two different matters. Hypothetically, in this study convergence relates to the trade between the city of Carcar and its neighboring towns, cultural exchange, merging of the city's rich historical background and its modern setting and lastly, the integration of the transportation terminal in which two bus routes leading to two different southern regions of Cebu meet and separate. From this concept, an architectural program is then established which is backed up by related law, ordinances and principles and is incorporated with significant sustainable architecture practices which could greatly help the project in achieving an environment-friendly facility. All of these stated process results to the realization of the project which is a proposed public market with a transportation terminal in the city of Carcar.

DEFINITION OF TERMS

Public Market – a type of commercial center that is usually owned and managed by the government where local vendors rent or lease spaces to sell their produce.

Center of Commerce and Trade – usually the place of a city or town where most of the business transactions are being done.

Dry Market – is the section in a market where goods such as clothing, accessories and fabric are located.

Wet Market – is the section in a market where goods such as meat, poultry, fish and produce are sold by independent vendors.

Retailing – commercial transaction in which a buyer intends to consume the good or service through personal, household or family use.

Transportation Terminal – a hub designed for the unloading and loading of passengers.

Traffic Congestion – a condition on traffic networks resulting to an increase of users, and is characterized by slower speed, longer trip times and increased vehicular queueing.

Public Health – refers to the health of the population as a whole.

Arterial Street – is a high-capacity type of road. Its main function is to deliver traffic from collector roads to freeways and expressways, and between urban centers and highest level of service possible.

Abattoirs – refers to a slaughterhouse.

Landscaping Buffer – landscaping element such as trees that are utilized to lessen or moderate the impact of winds.

ORGANIZATION OF THE STUDY

CHAPTER 1	This is the introductory part of the study wherein the focus is being presented through giving a background write-up, identifying the problem and setting goals and objectives that are to be obtained throughout this study.
CHAPTER 2	This chapter of the study presents the studies that are related to the study. Concepts and facts that are of the same focus of the study on public markets with transportation

	terminals are being considered in going over the planning and design of the proposal.
CHAPTER 3	This part shows how the goals are to be achieved through presenting a systematic methodology in which case the research environment, respondents, instruments and procedures are being presented along with their relevant inputs that contributes to the study.
CHAPTER 4	This chapter presents the collected data which is then being analyzed from which possible design solutions are derived. Related laws and standards are also being presented which then governs the overall planning and design of the project.
CHAPTER 5	This is the concluding part of the study from which the findings as derived from the gathering of data and its analysis is cited. Along with it is the initial schematic space programming and several recommendations that is applicable for the project.

CHAPTER II: REVIEW OF RELATED LITERATURES:

1. Public Market in Maramag, Bukidnon, Mindanao

Maramag is one of the many stops that locals and tourists pass, before going to Cagayan de Oro. This small town has succeeded in building a nice and clean public market, which cannot be compared to the ones in most big cities here in the Philippines. Seeing the clean market, the buyers, stall owners, and vendors are thus obligated to follow a disciplined way of throwing their garbage, and keeping their stalls neat, so as to keep the pests or vermin away from the edible products being sold in the premises. In conclusion the public market in Maramag, Bukidnon, is an example of good design and proper management, which influences its users to keep the area clean and thus provide a sense of trust, that the products being sold in the market is fresh and safe for use or consumption. (Femya, 2016)



2. Farmer's Market, Quezon City



Farmers Market is considered one of the best dry and wet markets in Metro Manila. It is located within the Araneta center area in Cubao commercial district adjacently located on the long stretch of Epifanio Delos Santos Avenue (EDSA). The best part about the market is the variety of goods offer starting from early in the morning.

Photos of Farmer's Market



VEGETABLES SECTION



FRUITS SECTION



FISH SECTION



BEEF, MEAT AND POULTRY SECTION

There are two levels in the market: the upper level that houses the stalls selling fruits, vegetables, flowers and the like while the lower level is the wet section of the market selling beef, fish, meat, poultry and the like. It also has a stalls and shops selling dry goods such as groceries, eggs, plastic wares, bags, native products, delicacies and gifts also including food court that is covered by a warehouse type roof that sits very high. (Nedic, 2012)

The market has the following **key features** according to observation:

MARKET MANAGEMENT:

- a. Primarily, it has an organized levels and sections for varieties of goods and products in competitive prices. It has color coding scheme on stalls: red for beef, meat, poultry and the like, blue for fish/seafood, green for vegetables and yellow for fruits.
- b. It is well maintained and offers better basic facilities such as water, electricity and toilets which are located near entrances/exits.
- c. It has organized delivery bays: the first bay is for fish/seafood and poultry while the other bay is for vegetables, fruits and flowers.

MARKET ENVIRONMENT:

- a. It has clean, airy and well lit market environment.
- b. It doesn't have too much dreaded market odor.
- c. It has wide elevated pathways that is paved and tiled for convenient market shopping where there is also ramps sprouting the market.
- d. It has wide elevated pathways that is paved and tiled for convenient market shopping where there is also ramps sprouting the market.
- e. It has shared parking area with the Farmer's Plaza that could cater vehicles from motorcycles to large cars.

MARKET ATTRACTIONS:

- a. It has attractive kapis lighting within the market.
- b. It offers push cart for convenient market shopping.

c. In the morning, the wet section selling fish/seafoods, goat, poultry and the like offers an animal picking to be butchered.

d. It has a “dampa” concept in the food court where anyone can have their “paluto” on their fresh bought goods and products. The price ranges from 90 to 200 pesos depend on what type of dish to be cook. There is also a mezzanine floor on food court which caters private restaurants.

3. Calapan Market, Calapan City



Calapan Market is the award winning and most modern public market not only in Mindoro, Marinduque, Romblon, Palawan (MIMAROPA) region but also to the whole country. It is located in the commercial area of Aurora blvd. in Calapan city. The market design and its facilities are their initial offering to attract and gain more consumers.

The market is a two storey building comprising 907 stalls of dry and wet sections, contradicting to the public market design, its ground floor contains stalls selling dry goods and products such as RTW and household items while the second floor serves as the wet section selling beef, fish, meat, poultry and the like. The market is covered by a long span roof with insulation. (Nedic, 2012)



PARKING AREA



ENTRANCE AREA



WALKWAY



WET SECTION

The market has the following **key features** according to observation:

MARKET MANAGEMENT:

- a. It offers better basic facilities such as toilets, water and electricity.
- b. It has an open space for other stalls.

MARKET ENVIRONMENT:

- a. It is a newly constructed structure and considering having an expansion.
- b. It is clean and well ventilated market environment.

c. It has paved and tiled flooring for convenient market shopping.

d. It is covered by a long span roof with insulation to protect both entrepreneurs and consumers from direct sunlight.

e. It has a passenger terminal where consumers could have an easy access to transportation after buying in the market.

4. TIME-SAVERS STANDARDS FOR BUILDING TYPES 2ND EDITION

CHAPTER 8: TRANSPORTATION

BUS TERMINALS (by Julius Paterno, Architect and Planning Consultant)

The General functional organization of the terminal is determined by site configuration, the volume and type of bus operations, and passenger and bus traffic circulation, although all terminal types to some extent share common significant differences in design rationale.

An island plan with the functional elements radiating from the core allows for maximum efficiency. Such a relationship would allow the “waiting” areas to serve as the central focal point, with all the bus berth positions being equidistant. As the terminal becomes more linear in plan, functional elements begin to lose their cohesiveness and often require duplication.

The parking facilities should be located as to minimize the walking distance to the terminal and that egress and ingress be planned to avoid traffic congestion along nearby arteries. If possible, covered walkways should be provided leading from the parking to the terminal building. (Callender, 1983)

5. Public Health and Landscape; creating healthy spaces

This article contains information on how landscaping can improve public health and how it can become a form of investment. In relation to the proposed project, this article can provide tips on how to achieve landscape design that would help in creating a better user experience. It also summarizes a list of principles in the creation of healthy spaces. These ideas will be needed so as to prevent making a kind of typical market in the Philippines which lacks the combination of functionality and presentation. (Landscape institute)

6. BUILDING PLANNING and DESIGN STANDARDS for Architects, Engineers, Designers, Consultants, Building Committees, Draftsman and Students

To summarize this book is an archive of standards related to building architecture and construction, which is very useful because it also contains general information needed in designing bus terminals. For example are the types of site layout and parking for buses, and a diagram of the functional relationships within a bus terminal. (Sleeper, 1955)

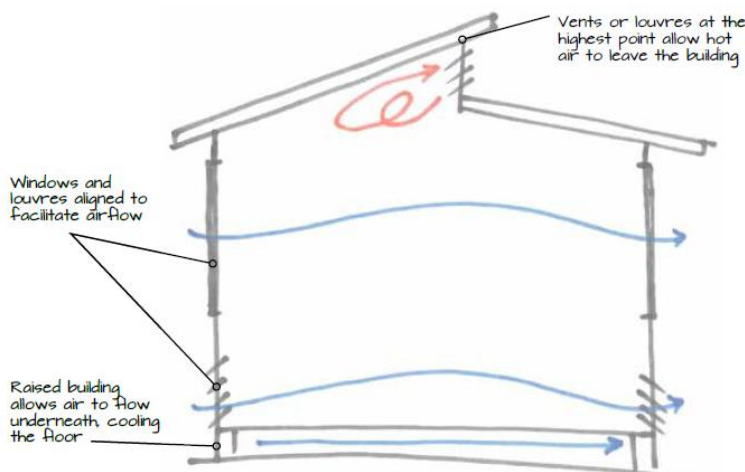
BUILDING TECHNIQUES AND TECHNOLOGIES:

SUSTAINABLE TROPICAL BUILDING DESIGN: Guideline for Commercial Buildings

Sustainable building design for the tropics differs considerably from sustainable building design for temperate areas. The majority of available information on sustainable design has been produced for temperate climates and is not applicable in the tropics. These guidelines have been developed specifically for the wet tropical climate of the Cairns region, and provide information on the key sustainable building design elements for the tropics. (Cairns Regional Council)

Public markets in the Philippines have been usually seen as a disorganized place to be in. Stalls from dry to wet goods are located in areas that not only lack in proper light and ventilation but also in sanitation. Proper usage of Sustainable Tropical building techniques will help in the planning of the proposed public market with terminal transportation, in the city of Carcar. Promoting Sustainable architecture in the project may be achieved through Passive Design.

Figure 1. Passive Ventilation (cross-section)



The main principles of passive design for buildings in the tropics are summarized below:

1. Avoid heat gain

- Orient the building to reduce exposure to midday sun, particularly summer sun.
- Use materials with low thermal mass (as a general rule).

- Shade wall and windows, particularly any walls with high thermal mass.
- Use glazing on windows that cannot be effectively shaded.
- Use insulation, light colors and heat reflective surfaces.

2. Encourage natural ventilation

- Orient the building and windows towards prevailing easterly winds
- Include operable windows and ceiling vents that enable the building to naturally ventilate.

3. Make use of natural light

- Install shaded windows.
- Install shaded skylight, light tubes and other natural lighting devices.

4. Create cool outdoor areas

- Use landscaping to provide shade without blocking cooling breezes and use planting to reduce ground temperature and minimize reflected heat.

BUILDING MATERIALS

Below are list of common materials that are used in a typical building construction:

1. Portland Cement

Made from materials which must contain the proper proportions of lime, silica, alumina, and iron components, Portland cement is sold wither in cement bags of 40 kilos weight or in BULK into cement trucks. (Salvan, 1986)

3. Waterproofed Portland cement

Normally produced by adding a small amount of stearate, usually calcium or aluminum, to the cement clinker during the final grinding. (Salvan, 1986)

4. Concrete Block

Made of lightweight and heavyweight materials for use in exterior and interior land-bearing walls, firewalls, curtain and panel walls, partitions etc. (Salvan, 1986)

5. Terra Cotta

Modern terracotta is machine-extruded and molded or press. The machine-made product is usually referred to as ceramic veneer, and is a unit with flat face and flat or ribbed back. (Salvan, 1986)

6. Reinforcing Steel or Rebars

Comes in plain or deformed bars, that is, bars which lugs or deformations have rolled on the surface to provide anchorage in concrete. (Salvan, 1986)

8. G.I. Roof Sheets

Roof made of steel strips coated with zinc. Produced in corrugated sheet or in plain sheets.

9. Floor Sealer (Anti-Skid)

This is an anti-slip coating over many types of base, especially in locations where wet or oily condition prevail. It may also be applied to steel, wood, aluminum, filed surface but should not be applied to asphaltic surface. (Salvan, 1986)

TROPICAL LANDSCAPING PLANTS

Below are common landscaping plants that can be found in a tropical country:

1. Garden croton or variegated croton (*Codiaeum variegatum*)

Is a species of plant in the genus *Codiaeum*, which is a member of the family Euphorbiaceae. It is native to Indonesia, Malaysia, Australia, and the western Pacific Ocean islands, growing in open forests and scrub. In tropical climates, crotons make attractive hedges and potted patio specimens, valued for their striking foliage. (Wikipedia)

2. Heliconia

Is a genus of flowering plants in the Heliconiaceae. Most of the ca 194 known species are native to the tropical Americas, but a few are indigenous to certain islands of the western Pacific and Maluku. Many species of Heliconia are found in rainforests or tropical wet forests of these regions. (Wikipedia)

3. Plumbago

Is a genus of 1020 species of flowering plants in the family Plumbaginaceae, native to warm temperate to tropical regions of the world. Common names include plumbago and leadwort (names which are also shared by the genus *Ceratostigma*). (Wikipedia)

4. Plumeria

Is a genus of flowering plants in the dogbane family, Apocynaceae.[1] It contains primarily deciduous shrubs and small trees. The flowers are native to Central America, Mexico, the Caribbean, and South America as far south as Brazil but can be grown in tropical and subtropical regions.

5. Palm

Any of a family (Palmae syn. Arecaceae) of mostly tropical or subtropical monocotyledonous trees, shrubs, or vines with usually a simple stem and a terminal crown of large pinnate or fan-shaped leaves. (Merriam's Webster)

CHAPTER III: METHODOLOGY

RESEARCH ENVIRONMENT

Carcar Government

Information from the government of Carcar is used in the study regarding their problems with the existing market and their lack of a terminal.

Carcar Public Market

The existing public market in Carcar is used in the research. A thorough visit was done to observe circulations, planning and behaviors of a public market and also to assess its present conditions in order to arrive at recommendations and viable solutions.

Proposed Sites

For the site selection process, three sites were considered: two of which are proximate to the existing public market and the other a bit farther. Site visitation was also done to gather more information to help in the analysis of each site and to determine the most feasible site for a public market.

Library

The library is a useful source of information with its wide array of books, journals, thesis and other reading materials.

Internet

The internet, another source of information, allows specific search of particular subjects and information that may be hard to find in the library.

RESEARCH RESPONDENTS

Vendors

Since the vendors are one of the most affected by the outcome of the proposal, they are a part of a huge consideration in the study since it is by studying and conducting interviews with them that will help the researchers arrive with the most plausible conclusions and solutions.

Consumers (Customers and Passengers)

Another one that is important to consider are the consumers. They are crucial to the success of any business since they represent its fundamental source of revenue. They also share ownership of the facility being constituents of the government who put up the facility.

Drivers

Since they are a part of the reason why the terminal is proposed, the drivers were also a part of the respondents for this research. Through this proposal, drivers will have an easier and more efficient way of picking up and dropping off passengers.

Government

The government of Carcar is the major benefactor to the proposal. Although they are not the direct users of the facility, they are responsible for the building, managing and maintaining it.

RESEARCH INSTRUMENTS

Internet

Since the internet is the most advanced way of gathering data for the proposal a large portion of the data from this study was gathered through the utilization of web inputs in forms of news articles, organizational studies, and reference sites. There is a vast amount of information available on the Internet.

Books and Journals

In addition, more resource material and data was collected from books and previous papers on the topic. Books and journals are major tools in learning and gathering data about the proposal. They provide insights of others who have undergone similar studies.

Interviews

Interviews are essential tool to the study. Through meeting individuals face-to-face, the researchers generate more ideas from people who are more knowledgeable about the project. For this research a non-directive approach in interviewing people was used. The respondents were free to express their ideas subjectively and questions were asked spontaneously.

Observations

Personal observations and previous knowledge on the subject are also taken into account for this project. Observations are a way to gather information on the spot by taking note of the details of procedures, flows, and routine of the research target. Ocular visits to similar existing structures and an observation of their environment will also widen the knowledge of the proponents study.

RESEARCH PROCEDURES

A. GATHERING OF DATA

Principally, the researchers are inclined to identify the problem, gather and evaluate data and develop the most probable solution architecturally.

In doing so, the study would adapt to a step-by-step procedure settled in the following stages:

1: Problem identification

- a.) Understanding the full scope of the problem.
- b.) Breaking down the general problem into issues that can be easily addressed.
- c.) Develop goals and objectives.

2: Data Gathering

- a.) Obtaining data relative to the topic through different sources such as:
 - Books, magazines, articles, other related projects
 - Internet
 - Statistical data

3: Client Identification

- a.) Through the identification of the problem and gathering of data, the challenge and demand would arise then the right client would be chosen.

4: Data Evaluation

- a.) Pointing out specific data needed to the study.
- b.) Considering the most pressing issues needed to be addressed based on the evaluation made.
- c.) Considering the client's preferences.

5: Site Selection

- a.) Conducting various analyses on each prospected site based on different criteria for the ideal site.
- b.) Determining spaces and facilities needed.
- c.) Making of conceptual diagrams and bubble schemes to have an overview as to how the elements should function as a whole.

B. TREATMENT OF DATA

The information gathered is beneficiary in the formulation of a logical design solution. Space requirements are then identified for the functions and relation to the user's activities. Data on the space requirements are then drafted to form diagrams connecting their inter-relationship.

CHAPTER IV: PRESENTATION AND ANALYSIS OF DATA

THE CLIENT

CARCAR CITY

Carcar City is located approximately 40.3 kms. Southwest of Cebu City and is known to be the gateway to the South and Southwestern part of the Island of Cebu. It is bounded on the North by the Municipality of San Fernando; on the South by the Municipality of Sibonga; on the West by the Municipalities of Barili and Aloguinsan; and on the east by Bohol Strait.

Class	: 5th
Annual Income	:(As of 1996) P 26,255,095.24
No. of Barangays	: 15
Total Land Area (Cadastral Survey)	: 11, .622.70 has.

Carcar was proclaimed as a city July 7, 2007. However, almost one year passed, the Supreme Court ruled that the city, together with other 16 cities in the Philippines did not meet the qualified requirements for the cityhood of the municipality which is to have an annual income of not less than 100 million. But on Decemeber 10, 2008, Carcar together with other 15 cities affected filed a motion for reconsideration to the Supreme Court. More than half a year later, the court reversed its ruling and restored the cityhood of Carcar and the other 5 cities affected.

History

Known as the Heritage City of Cebu, the city of Carcar is home to various Spanish and American-era houses and structures. One of the most famous Spanish period structures in Carcar is the Saint Catherine of Alexandria Parish Church. The Carcar Dispensary, Rizal Monument and the Rotunda are some of the prominent structures built during the American Period and are still present until now.

Carcar's most well-known industry is the making of shoes and sandals making it the shoe capital of Cebu. The industry started in the 17th century and reached its peak in the 1960s. Since then, many shoemakers have closed down because of problems like intense competition from other shoemakers in Cebu and from foreign shoe imports. However, they still continue to operate till now.

Its native delicacies are also famous such as ampao, bucarillo and chicharon.

Topography

Carcar is nearly level lands with less than 18% slope composing of 78.7 % of the total land area. Areas with slopes ranging from 18 to 50% cover 19.3% of the total land area and those over 50% slopes comprise approximately 1.9%. The highest recorded elevation is a little over 660 meters above sea level, located within the barangay of Napo.

Land Classification as of 1994

Arable Area	: 15,826.00 Has.
Residential	: 118.05 Has.
Commercial	: 47.00 Has.
Industrial	: 76.80 Has.
Agricultural	: 5,998.43 Has

Total Capable Area	: 637.99705 Has.
Classified Forest/Reservation/Timberland	: 999.20 Has.
Open Grasslands	: 864.79 Has.
Unclassified Forest Land/Wilderness	: 1,500.00 Has.
National Parks/Playgrounds	: 282.97 Has.
Rivers & Spring	: 100.00 Has.
Bolinawan Islet	: 26.00 Has.

Climate

The wet season occurs during the months of May to October and the dry season, from January to May.

Soil Type

The municipality has five (5) dominant soil types namely: Faraon Clay, Steep Phase, the Lugo Clay, the Mandaue clay loam & the Hydrosol type.

Geology

The municipality has 14 kms. shoreline and a depth-span of 29 km. from the coast to the interior boundaries on the western portion of the municipality. It has a total land area of approximately 11,622.70 has., including the 26 has. Bolinawan Islet of which 5,628.70 ha. are urban lands and 391 has. are classified as swamp and mangrove areas mostly converted into fishponds.

Demography

Population (as of May 1, 2010)	: 107,323
No. of Household	: 16,714
Labor Force	: 44,596

Infrastructure and Utilities Road Network

National Road	: 17.21 Kms.
Provincial Road	: 30.65 Kms.
Municipal Road	: 10.26 Kms.
Barangay Road	: 184.98 Kms.

Schools (Public & Private)

Elementary	: 16
High Schools	: 10
Vocational	: 2
College	: 1
Public Market	: 3
Multi-purpose Building	: 5
Recreation Courts/Centers	: 15

Transportation Services

No. of Buses	: -
No. of Jeepneys	: 175
No. of Tricycles	: 75
No. of Triscads	: 9

Power

Source of Electricity	: CEBECO I
Total Area Served	: 9,610.0 Has.
Total Area Unserved	: 2,052.7 Has.
No. of Barangay Served	: 14
No. Household Served	: 7,233
No. of Households Unserved	: 8,021

Health Center

No. of Hospitals	: 1
No. of Clinics	: 7

Water

Sources of Water	No. of Households served
Comm. Water System	
Private Faucet	1380
Shared Faucet	2595
Tube/Piped Shallow Well	
Private Well	351
Shared Well	2638
Dug Well	3577

Financial Intermediaries

No. of Commercial Banks and Money Shops : 2

No. of Rural Banks : 2

No. of Lending/Financing Institutions : 5

No. of Cooperatives within the area : 5

Trade and Industry**Commercial Establishments**

Type of Business	No. of Establishments
Sari-sari Stores	379
Restaurants & Cafeterias	50
Fresh Fish & Meal Retailers	25
General Merchandising	12
Service and Repair Shops	15
Tailoring & Dress Shops	6
Pawnshops & Lending Investments	5

Lumber and Hardwares	5
Pharmacies and Drug Stores	8
Marketing Firms (Appliances, furniture,etc.)	3
Gasoline Stations	2
Bakeries	8
Photo Shops & Beauty Parlors	5

Raw materials available within the area:

Types of Materials	Location
1. Clay Tuyom	Valladolid
2. Limestone	Perrelos, Can-asujan, Pob.I & Valencia
3. Clay Phosphate	Mainit Mabugnaw
4. Bamboos	

Type of Industry	Area	Labor Force
Cottage Industry	550.00 Has.	Households
Shoe Industry	200.00 Has.	Households
Ampao, Chicharon Making	254.87 Has.	Households
Metalworks	-	-
Blacksmith	197.50 Has.	-

Livestock & Poultry	Farm Area	Location	No. of Heads
Susanna Co.	10 Has.	Valladolid	380
Agri. Dev. Corp. Egg Farm	64 Has.	Valladolid	6,000
Cerilo Saba	0.1 Ha.	Poblacion I	400
Mangiran Farm	0. 5 Ha.	Guadalupe	1,200

Ramos Farm Broile	1.0 Ha.	Can-asujan	6,000
Lauron Farm	1.0 Ha.	Valladolid	72,000
Catan Farm	1.0 Ha.	Liburon	72,000
Ta-asan Farm	2.0 Has.	Valladolid	72,000
Deparine Farm	1.0 Ha.	Valladolid	72,000
Gil Caballero	1.0 Ha.	Tuyom	12,000
Joe Caballero	6.0 Has.	Valladolid	72,000
Edwin Ong	1.0 Ha.	Liburon	36,000
Carlos Go	4.0 Has.	Valladolid	144,000

Fisheries: Fishponds

Location	Area (Has.)	Volume of Yield
Ocaña, Valladolid	88.00 Has.	105.60 tons
Bolinawan		
Poblacion		

Major Agricultural Products

Product	Volume of Yield (Metric Ton)
Rice	2,665
Irrigated	2.0
Non-irrigated	3.5
Corn	4,186.0
Coconut	2,047.2
Vegetables	145.0
Root Crops	290.0
Monggoes & Peas	30.0
Mangoes	50.0
Bananas	28.0

THE USERS

Primary Users- The primary users are the ones involved in transaction. They are the **Producers** and **Consumers**.

PRODUCERS	
USERS	DESCRIPTIONS
PUBLIC MARKET	
Traders	Traders are those who deliver and sell bulk trades to a place where demand is higher. This may include traders from other towns where agriculture, fishery, forestry and livestock are dominant.
Wholesalers/Retailers	Wholesalers/ Retailers are those that buy trades from traders and sell it to the public on a wholesale or retail basis to gain profit. They are usually the stall owners of dry, semi wet and wet market.
Entrepreneurs/ Concessionaires	Entrepreneurs/ concessionaires are those that own and operate small businesses for commercial purposes. Typically, these are the owners of appliance stores, bakeshops, barber shop, bookstores, tailoring shops and the like.
Laborers	Laborers are those that are hired by their employer to perform specific duties or tasks.

	They are usually the salesladies, baker, barbers, cashiers and the like.
TERMINAL	
Drivers	Drivers are those that operate vehicles for public use. These include bus, jeepney, tricycle, motorcycle and “habal-habal” drivers.
Conductors	Conductors are those that assist the driver in operating the vehicle.

Consumers may mean customers of the market or the passengers.

CONSUMERS	
USERS	DESCRIPTIONS
Locals	Locals are those that live in Carcar City. Most of them are those that live within a closer proximity to the market.
Tourists	Tourists may refer to Filipino people who do not reside in Carcar or to foreign nationals.

Secondary Users- The Secondary Users are the ones involved in managing the facility and rendering service to the people. These are the **Administrative** and **Service Personnel**.

ADMINISTRATIVE PERSONNEL	
USERS	DESCRIPTIONS
Market Administrator	The Market Administrator is the one appointed by the local government to monitor and manage the general condition of the market and its personnel.
Collectors	Collectors are those sent by the treasurer's office of the city local government to collect rental and other fees with the presence of market administrator as source of fund of the city local government.
Inspectors	Inspectors are those authorized by the city local government to conduct necessary inspection for the safety of the general welfare. This may include a veterinarian, meat control officer and market stall officer.
Public Health Officer	The Public Health Officer is the one appointed by the city health office to oversee the safety of the public in terms of food consumption and other related activities.
Tourism and Recreation Officer	The Tourism and Recreation Officer is the one appointed by the tourism division of the local government to negotiate with different traveling agencies that include the market in the trail for tourists.

Clerk	The Clerk is the one who is appointed by the general service's office of the local government to hire and manage service personnel for the market.
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SERVICE PERSONNEL	
USERS	DESCRIPTIONS
Security Personnel	Security Personnel are those that ensure the security of the public including the control of pedestrian and vehicular flow.
Maintenance Personnel	Maintenance Personnel are those that check and repair mechanical and technical matters. They are plumbers, electricians and the like.
Utility Personnel	Utility Personnel are those that maintain the cleanliness and orderliness of the facility. They are also logistics personnel who carry cargos and garbage.

RELATED BUILDING LAWS**RULES AND REGULATIONS**

There are guidelines to follow in order to make the proposal functional and safe for its users. These factors will be directed to the following rules and regulations:

- PD 1096: National Building Code of the Philippines and Its Implementing Rules and Regulations
- PD 856: Code on Sanitation of the Philippines and Its Implementing Rules and Regulations
- PD 1185: Fire Code of the Philippines and Its Implementing Rules and Regulations
- BP 344: Accessibility Law and Its Implementing Rules and Regulations
- RA 1378: National Plumbing Code of the Philippines and Its Implementing Rules and Regulations
- RA 184: Philippines Electrical Code Signage
- National Market Code of the Philippines: Basic Policies and Regulations
- HLURB: Implementing Rules and Regulations to Govern the Processing of Application for Locational Clearance of Markets.
- Market Code of the Philippines
- Code of Sanitation of the Philippines

PLANNING AND DESIGN STANDARDS**HOUSING AND LAND USE REGULATORY BOARD****IMPLEMENTING RULES AND REGULATIONS TO GOVERN THE PROCESSING OF APPLICATION
FOR LOCATIONAL CLEARANCE OF MARKETS****Section 4. Design Standards and Requirements****A. General Guidelines****I. Location**

- a. Public markets should be within designated commercial zone/area and is accessible preferably through an arterial street. Having a service access for trucks is essential for the delivery of goods and other services.
- b. It should be located at least 50 meters from schools, religious institutions, public offices, funeral establishments, and other public gathering/places such as auditorium and public plazas, and should be at least 25 meters away from abattoirs (slaughterhouse) and other possible sources of contamination.
- c. The market should be located at a site within walking distance of 0.75 km to the nearest terminal, serving a population that ranges from 10,000 to 150,000 people.
- d. If located near rivers, streams or lakes, the easement should be in accordance with the Water Code of the Philippines.

II. Topography

The land should be level to rolling terrain, or as long as clearing and grading will pose no problem in terms of undue expense and soil erosion. The site should not be subject to flooding.

III. Soil Bearing Capacity

Soil bearing capacity must be adequate to support building load.

IV. Size

The size shall be large enough to accommodate all activities in the center. Lot shape shall be regular and preferable be separated and within market site.

V. Circulations

- a. Access, loading and unloading of good, customers and services should preferably be separated and within markets.
- b. Carrying capacities of roads and pedestrian walk within the site be adequately planned so as not to obstruct traffic flow along the access road.

VI. Parking

- a. Other building in business/ Commercial Zones: 1 slot/125 sq.m. of gross floor area
- b. Markets: 1 slot/150 sq.m of shopping area
 - Location of the parking area should be between the stores and the streets such that it would be away from the pedestrian areas.
 - A separate area should be provided specifically for parking and queuing of public transport modes such as tricycles, buses and jeepneys.

VII. Landscaping and Buffering

The market complex needs sufficient landscaping and buffering. A minimum of five (5) meters for this purpose may be provided along perimeter of the site.

VIII. Use

The market and all the properties therein shall be used for market purposes only. For wet markets, offices allowed are for the market master/employees and market cooperatives and cold storage establishment (except for ice depository) should be located at least 25 meters from the market.

IX. Maintenance

Maintenance of the market shall be the sole responsibility of the owner/operator

X. Location of Stalls

Stalls shall only be allowed inside the market premises. Construction of stalls and selling along the sidewalk and outside the market shall be penalized under Section 7: Fines and penalties and other penalties defined under specific LGU ordinance.

B. Utility Requirement (Per DOH Implementing Rules and Regulations of Chapter IV Markets and Abattoirs of the Code on Sanitation of the Philippines – PD 856)

1. Water Supply

- a. There shall be sufficient supply of potable water either from the public main water supply or from an approved source.
- b. The quality of water used within the market shall be in accordance with the Phil. National Standard for Drinking Water.
- c. Each stall in the carenderia, fish, and meat and entrails sections shall be provided with piped water supply facilities. Water supply shall be maintained at a pressure of 1.379 kilopascals (Kpa) or 1.479 Bar.
- d. There shall be adequate number of water pipe outlets for easy cleaning of the market and its premises. Water-supply of at least 49 liters/capita/day shall be provided and maintained based on the number of vendors and average number of customers per day.
- e. Drinking fountain or any equivalent water dispensers shall be provided in the market.
- f. All other pertinent provisions of the Implementing Rules and Regulations of the Chapter II – Water Supply of The Code on Sanitation of the Philippines (PD 856) are hereby adopted and made part of these Rules and Regulations.

2. Sewage Disposal and Drainage

- a. Sewage shall be disposed to a public sewage system or in the absence thereof, in a manner complying with Chapter XVII – Sewage Collection and Disposal Excreta Disposal and Drainage of the Code on Sanitation of the Sanitation of the Philippines (PD 856) and its Implementing Rules and Regulations.
- b. There shall be sufficient facilities in the market and its premises. At least one floor drain shall be provided in every 46.5 square meters (500 square feet) of floor area. Slope shall not be less than 2.05 centimeters per meter (1/4 inch per feet) to the drainage inlet.

- c. Sewer line from toilet and urinals shall not be connected with drainage line the market.
- d. Drainage facilities shall be installed in accordance with the provisions of the National Plumbing Code of the Philippines.

3. Power

Power supply shall be connected to any approved public or community power supply system. A stand-by generator may be provided in case of power failure.

4. Fire Safety Equipment/Facilities

Provision/installation of fire safety equipment/ facilities in the market should be in accordance with the Fire Code of the Philippines.

C. Facility Requirements (Per DOH Implementing Rules and Regulations of Chapter IV – Markets and Abattoirs of the Code on Sanitation of the Philippines – PD 856)

1. Waste Disposal

- a. Proper solid waste management should be instituted in the market in accordance with the pertinent provisions of Chapter XVII – “Refuse Disposal” of the Code on Sanitation of the Philippines (PD 856) and its Implementing Rules and Regulations.
- b. Adequate number of refuse bins should be provided in strategic places for temporary disposal of refuse before being collected.
- c. A shredding space shall be allocated in the market premises.
- d. Each stall should be provided with at least 2 covered refuse receptacles for biodegradable waste and another receptacle for non-biodegradable wastes.
- e. All receptacles/refuse bins shall be provided with tight fitting lids or covers, so constructed and maintained as to be vermin-proof and easily cleaned.
- f. Storage bins or refuse should be designated separately from food handling operations.
- g. Solid wastes should be collected daily or more often as necessary.

- h. Compostable waste shall undergo composting while recyclable waste shall be sold to junk shops and recycling industries and the remaining solid waste shall be brought and disposed in the landfill.

2. Toilet and Hand-Washing Facilities

a. Minimum Requirements for Toilet and Hand-Washing Facilities for Personnel and Stallholders

Number of Persons	Water Closet		Urinal	Wash-Hand Basin	
	Female	Male		Female	Male
1 – 49	1	1	-	1	1
50 - 100	2	1	1	1	1

Note: Additional 1 fixture for each additional 50 persons.

b. Minimum Requirements for Toilets and Hand-washing Facilities for Consumers

Number of Persons	Water Closet		Urinal	Wash-Hand Basin	
	Female	Male		Female	Male
1 – 49	1	1	-	1	1
50 - 100	2	1	1	1	1

Note: 1 toilet for differently-abled female and male customers respectively, shall be provided, additional 1 water closet and 1 urinal for each additional 1 water closet for each additional female. Toilet and hand-washing facilities shall be located within the market area to cater the public.

c. Minimum Toilet Space Requirement

Unit	Sq.m./Unit	Sq.Ft./Unit
Water Closet	1.5	16
Lavatory	1.11	12
Urinal	1.11	12

PRESIDENTIAL DECREE No. 856 December 23, 1975

CODE ON SANITATION

Section 17. Structural Requirements Food establishments shall be constructed in accordance with the following requirements:

a. FLOORS:

- i. Constructed of concrete or other impervious and easily cleaned material, resistant to wear and corrosion and adequately graded and drained.
- ii. Constructed of wood with dovetailed or tongue and grooved floor boards laid on a firm foundation and tightly clamped together.
- iii. Constructed in accordance with the requirements of sub-clause (i) and (ii) of this clause and covered with linoleum, smooth surfaced rubber or similar material fixed to the floor with cement or suitable adhesive.

b. WALLS:

- i. The internal surface of walls shall have a smooth, even, non-absorbent surface capable of being readily cleaned without damage to the surface and constructed of dust-proof materials.
- ii. The walls, where subject to wetting or splashing, shall be constructed of impervious, non-absorbent materials to a height of not less than 79 inches (2 meters) from the floor.
- iii. The internal walls shall be painted in light colors or treated with such other wall finish as the health authority may prescribe.

c. CEILINGS:

- i. All ceilings or, if no ceiling is provided, the entire under-surface of the roof shall be dust-proof and washable.
- ii. The ceiling or undersurface of the roof of rooms in which food is prepared or packed or in which utensils or hands are washed shall be smooth, non-absorbent and light.

d. LIGHTING:

- i. In rooms where food is prepared or packed or in which utensils or hands are washed there shall be a minimum illumination intensity of 20 foot-candles; in premises where food is consumed, there shall be a minimum illumination intensity of 5 foot-candles. Intensities of illumination shall be measured at a point 30 inches (76.20 cm.) above the floor.
- ii. All lighting shall be reasonably free from glare and distributed so as to avoid shadows;
- iii. At other areas or working surfaces, the illumination shall be of such intensity as may be required by the health authority.

e. VENTILATION:

- i. The ventilation shall be adequate to prevent the air from becoming excessively heated, prevent condensation and the formation of excess moisture on walls, ceilings and for the removal of objectionable odors, fumes and impurities.
- ii. In the absence of effective natural ventilation, mechanical ventilation with airflow from a clean area, and discharging in such a manner as not to create a nuisance, shall be provided.
- iii. Canopies, air ducts, fans or other appliances shall be provided as required by the health authority in particular circumstances.

f. OVERCROWDING:

There shall be sufficient floor space to enable every person working thereon to carry out his duties efficiently and to permit easy access for cleaning. Working spaces, aisles or passageways and areas to which customers have access shall be unobstructed and

sufficient to permit movement of employees and customers without contamination of food by clothing or personal contact.

g. WASH-HAND BASINS:

- i. Wash-hand basins shall be installed in convenient places and as near as practicable to where the person for whose use they are provided.

Section 20. Vermin Control

- a. Spaces where food and drinks are stored, prepared and served shall be so constructed and maintained as to exclude vermin.
- b. All opening which connects spaces to the outer air shall be effectively protected with screen of non-corrosive wire 16-mesh or finer. Door screens shall be tight-fitting.

Section 21. Toilet

- a. Toilet rooms shall not open directly into spaces where food is prepared, stored or served. Where such toilets exist, the doors shall be tight fitting and self-closing.

Section 35. Responsibility of the Local Health Authority

- a. Markets
 1. Make periodic inspections to ascertain the maintenance of adequate sanitary conditions of markets and their premises.
 2. Supervise and control the proper care and use of market stalls
 3. Prohibit the construction of living quarters within any market and its premises
 4. Enforce the ban on construction of partitions, sheds or booths within the market area.
- b. Abattoirs
 1. Supervise the maintenance of adequate sanitation in abattoirs and their premises
 2. Enforce the requirements on the examination of meat as provided in existing laws
 3. Permit the slaughter of animals for public consumption in other designated areas in certain exigencies, provided public health is adequately protected.
 4. Supervise the sanitary disposal of all abattoir wastes

Chapter IX. Section 54. Rest areas, bus terminals, bus stops and service station areas with one or more permanent sheds, buildings and service facilities for motor vehicles shall be provided with sanitary facilities for the convenience and personal necessities of the travelling public.

- a. Rest areas, bus terminals, bus stops and service stations shall be established with ample area
- b. They shall be provided with adequate ventilation and lighting and away from sources of nuisance.
- c. Water supply shall be provided in accordance with the provisions of Chapter II of this Code.
- d. Sewage disposal shall be provided in accordance with the provisions of Chapter XVII of this Code.
- e. Refuse disposal shall be in accordance with the provisions of Chapter XVIII of this Code.
- f. Comfort rooms shall be provided in accordance with the provisions on Chapter XVII of this Code.
- g. Waiting sheds for commuters shall be of adequate size to comfortably accommodate a minimum of thirty (30) persons.
- h. Sale of foodstuffs in those establishments shall be done in conformity with the provisions of Chapter III of this Code.

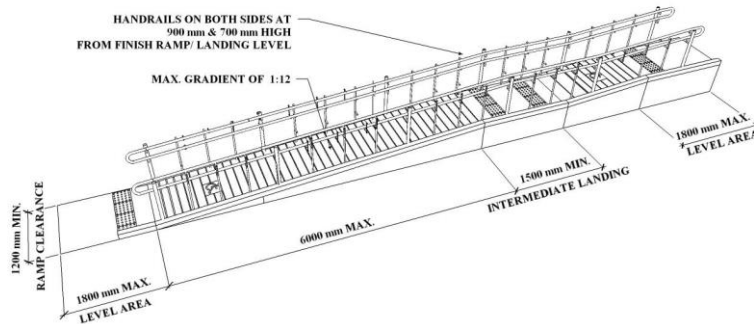
**BP 344 IMPLEMENTING RULES AND REGULATIONS (IRR) AMENDMENTS: MINIMUM
REQUIREMENTS FOR ACCESSIBILITY**

A. General Provisions

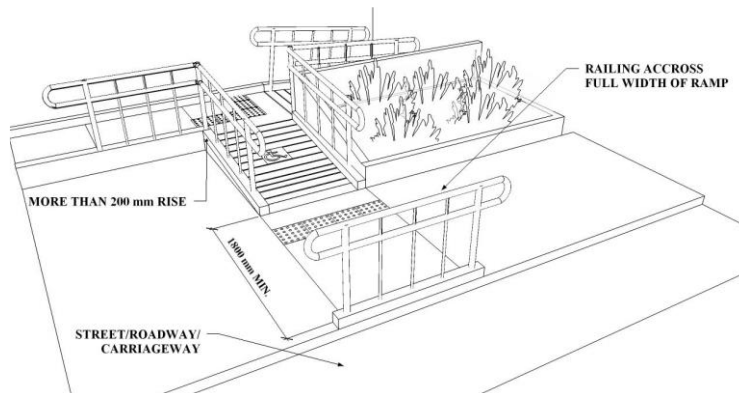
1. Accessible Ramps

- 1.1. Design of ramp wider than 1.20 m. but not less than 3000 mm. requiring intermediate handrails

- 1.2. Maximum length of 6.00 m.: Accessible ramps with a total length longer than 6.00 m shall be provided with intermediate landings with a minimum length of 1.50 m.



- 1.3. Level area not less than 1.80 m at the top and bottom of any ramp.
- 1.4. Handrails on both sides of the ramp at 700 mm and 900 mm from the floor of the ramp.
- 1.5. 300 mm long extension of the handrail shall be provided at the top and bottom of ramps.
- 1.6. Any ramp with a rise greater than 170 mm and leads down towards an area where vehicular traffic is possible, should have a railing across the full width of its



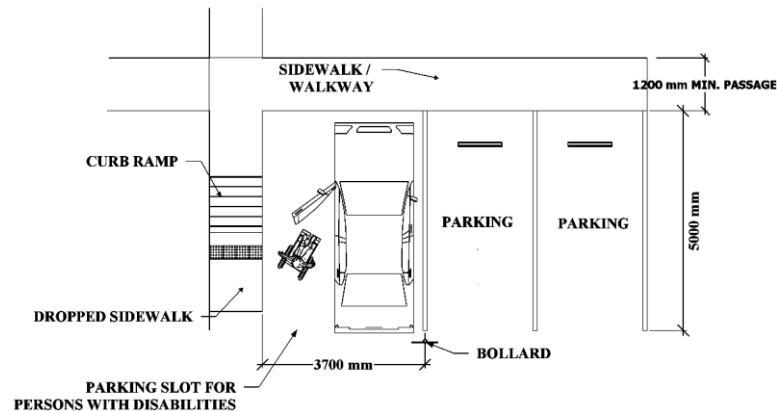
lower end, not less than 1.80 meters from the foot of the ramp.

2. Accessible Parking Slot Requirement

ACCESSIBLE PARKING SLOT REQUIREMENT	
TOTAL NUMBER OF PARKING SLOT	REQUIRED NUMBER OF ACCESSIBLE PARKING SLOTS
1 – 25	1
26 – 50	2
51 – 75	3
76 – 100	4
101 – 150	5
151 – 200	6
201 – 300	7
301 – 400	8
401 – 500	9
501 – 1000	2% OF TOTAL SPACES
1001 - OVER	20+ (1 FOR EACH 100 OR A FRACTION THERE OVER 1000)

- 2.1. Accessible parking slots shall be located nearest to accessible main entrances.
- 2.2. Whenever and wherever possible, accessible parking slots should be perpendicular or to an angle to the road or circulation aisles.
- 2.3. Parallel parking is discouraged unless it can be situated so that persons entering and exiting vehicles will be out of the flow of traffic.
- 2.4. Accessible parking slots shall have:
 - 2.4.1. A minimum width of 3.70 m and a length of 5.00 m.
 - 2.4.2. A walkway with a minimum clear width of 1.20 m. provided between the front ends of parked cars.

- 2.4.3. Dropped sidewalks or curb ramps leading to the parking level where access walkways are raised.

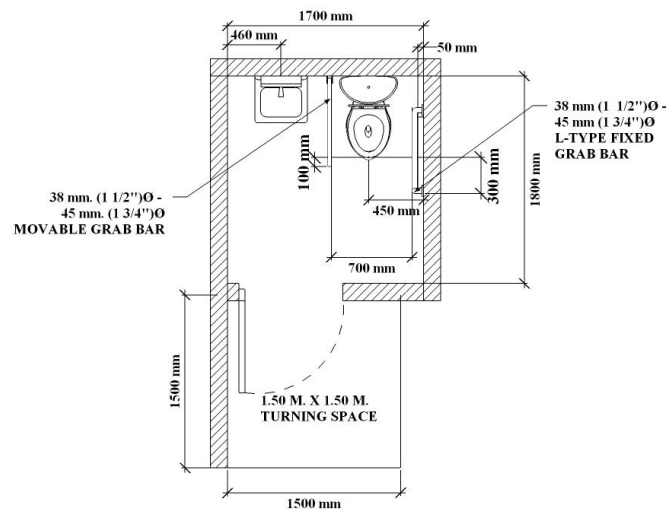


- 2.5. Parking slots for persons with disabilities shall never be located at ramped or sloping areas.
- 2.6. In buildings with multiple accessible entrances with adjacent parking, accessible parking slots shall be dispersed and located closest to the accessible entrances.
- 2.7. In parking facilities that do not serve a particular building, accessible parking shall be located on the shortest accessible route of travel to an accessible pedestrian entrance of the parking facility.

3. Accessible Toilets

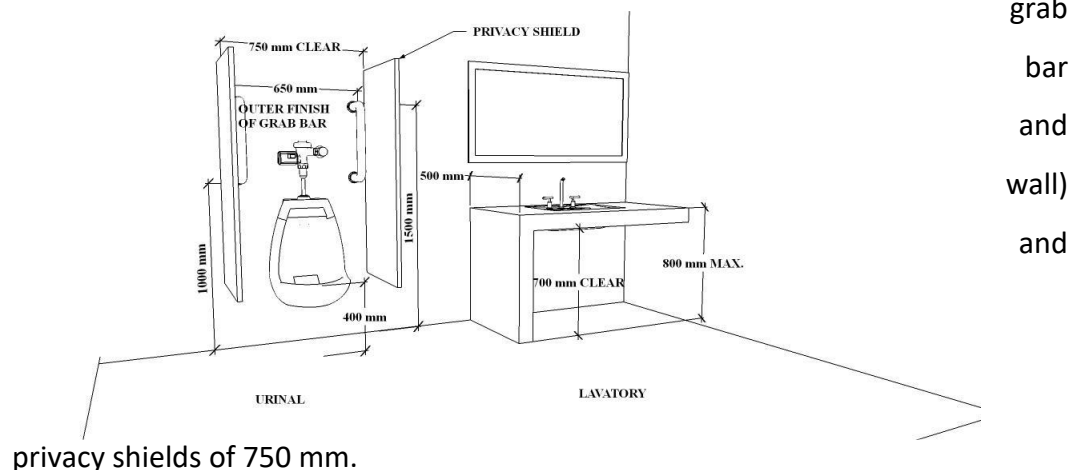
- 3.1. Accessible public toilets shall permit easy passage of a wheelchair and allow the occupant to enter a toilet compartment, close the door and transfer to the water closet from either a frontal or lateral transfer.
- 3.2. The minimum number of accessible toilet compartments on each floor level or on that part of a floor level accessible to persons with disabilities shall be one (1) where the total number of water closets per set on that level is 20; and two (2) where the number of water closets exceeds 20.
- 3.3. Accessible toilet compartments shall have a minimum area of 1.70 m x 1.80 m.

- 3.4. A turning space of 2.25 sq. m with a minimum dimension of 1500 mm for wheelchair users shall be provided outside water closet cubicles.
- 3.5. Accessories such as mirrors, paper dispensers, towel racks and fittings such as faucets mounted at heights reachable by wheelchair users.
- 3.6. The height of toilet seat shall be 450 mm.



4. Accessible Urinal and Lavatory

- 4.1. A lavatory shall be installed at 460 mm distance from center line to adjacent wall. Lavatories shall be mounted at a height of 800 mm from the finish floor with a vertical clear leg room space not lower than 650 mm.
- 4.2. Urinals shall be of the wall-hung type and should have an elongated lip; the maximum height of the lip should be 480 mm from the toilet floor. It shall have a minimum clear floor space of 750 mm wide (wing to wing) by 1200 mm (between



NATIONAL MARKET CODE OF THE PHILIPPINES

BASIC POLICIES AND REGULATIONS

Section 5. Site - No public market of any kind shall be established in sites determined in accordance with the National Building Code, zoning laws, and applicable local ordinances. In any case no such public market shall be established beside a national or local road if it is deemed to cause traffic congestion due to the ample parking space within the vicinity.

Section 6. Establishment Requirement – Subject to permit or licensing requirement of the local government unit concerned, the design and construction of every public market shall be in accordance with the provisions of existing laws.

Section 7. Number of Markets – The total Sanggunian shall determine the number of public markets to be established in the city/municipality based on the needs of both consumers and traders in the area, and considering the economic viability of such public markets.

Section 8. Cleanliness and Sanitation – All markets and their premises must at all times be kept clean and in sanitary condition to safeguard the health and safety of the buyers as well as the stall owners.

Section 9. Sanitation Unit – All markets must be a sanitation unit with an adequate number of personnel to ensure efficient operation in the maintenance of cleanliness and sanitation within the market and its premises. The cleaning of markets and their premises shall be done as often as necessary.

Section 10. Facilities required to be Provided – There shall be proper and adequate drainage and sewerage systems to ensure cleanliness. Appropriate facilities to abate pollution shall be installed.

Section 11. Water and Drinking Facilities – All markets shall have available ample water for cleaning. There shall be separate drinking facilities to prevent contamination.

Section 12. Public Toilets – Public toilets with adequate lavatories, at least one for men and women, shall be provided and installed in strict conformity with the Sanitation Code.

Section 14. Number and Type of Garbage Receptacles – all markets shall be provided with the large garbage receptacles of the fly-and-rat proof type for the collection of all the garbage in the market and its premises. These garbage cans shall be placed at strategic places for the garbage and rubbish of the buyers, ambulant vendors and market personnel.

Section 15. Purpose of Cover – All garbage cans must be properly covered to keep from becoming the breeding places of vermin or pests.

Section 16. “Use of Garbage Cans” Signs – signs shall be placed at the entrance, in passageways and in places where garbage are collected.

Section 17. Disposal of Garbage – It’s the responsibility of the stall owners and vendors to dispose their garbage at the end of each day in the receptacles referred in Section 15. Waste dumping areas shall be located at convenient places wherein garbage collectors shall have access to collect them. Solid waste from each stall holder shall be transferred to the central dumping area to facilitate efficient solid waste management.

SITE CRITERIA AND ANALYSIS

BASIS FOR MULTI-CRITERIA ANALYSIS

Direct Accessibility to Road Networks

It is desirable to choose a site that is direct accessible to roads especially that the project requires an efficient traffic flow to accommodate the incoming deliveries from suppliers of the public market as well as serving the consumers. And the integration of a transport terminal intensifies the need for a very accessible road network to mitigate traffic congestion that the proposal would bring to the city.

Availability of Utilities

For the proposed public market with a transportation terminal to function as it is expected to, utilities such as water supply, drainage and electrical should be directly available to the site. Water supply and drainage are factors that should be strictly considered to maintain a hygienic public market environment.

Proximity to the City Center

Public markets are expected to serve the people therefore it is desirable for the site to be proximate to where most of the residential zones are located. Also, tourists could benefit if the public market with a transportation terminal is situated near the city center.

Land Zoning

It is desirable for the site to be according to what type of occupancy the proposal is. Since it is a public market with a transportation terminal, it is desired for the site to belong to the Commercial Zone as classified by the city government of Carcar.

Favorability of Nearby Structures

It is important to consider the adjacent establishments in selecting a site for the proposal. It is important that the proposed public market with a transportation terminal does not affect the existing buildings and should promote a cohesive relationship instead.

Vulnerability to Natural Hazards

Selecting a site that is not easily hit by typhoons, floods or earthquake is a must for this proposal to avoid interruption of business transactions.

Area of the Site

A large area is desirable for this proposal to thoroughly accommodate the consumers, producers and the passengers for the terminal. Also, it should be big enough for future expansions

CRITERIA	PERCENTAGE	SITE A	RATING	SITE B	RATING	SITE C	RATING
Direct Accessibility to Road Networks	20%	Bounded by a road that connects to national highway	7/10 x 0.20 = 0.14	Bounded by three roads, one is the national highway, two arterial roads with	9/10 x 0.20 = 0.18	Bounded by an arterial road that connects to a collector road which	6/10 x 0.20 = 0.12

				one connects to the road going to Toledo City,		then connects to the national highway	
Availability of Utilities	20%	Utilities are available	$8/10 \times 0.20 = 0.16$	Utilities are available	$8/10 \times 0.20 = 0.16$	Not fully established drainage system	$6/10 \times 0.20 = 0.12$
Proximity to the City Center	10%	15 minutes to city center	$9/10 \times 0.10 = 0.09$	5-10 minutes to city center	$10/10 \times 0.10 = 0.10$	20 minutes to city center	$8/10 \times 0.10 = 0.08$
Land Zoning	15%	Residential, private owned	$7/10 \times 0.15 = 0.105$	Agricultural, private owned	$7/10 \times 0.15 = 0.105$	Agricultural, government owned	$8/10 \times 0.15 = 0.12$
Favorability of Nearby Structures	10%	Nearby structures are composed mostly of residential buildings, few portions of agricultural lots and a	$7/10 \times 0.10 = 0.07$	Surrounding structures are mostly commercial and agricultural and residential	$8/10 \times 0.10 = 0.08$	Adjacent lot are dominated by agricultural zones	$6/10 \times 0.10 = 0.06$

		walking distance for commercial establishments					
Vulnerability to Natural Hazards	10%	Less vulnerability to natural hazards	10/10 $\times 0.10$ $= 0.10$	Less vulnerability to natural hazards	10/10 $\times 0.10$ $= 0.10$	Less vulnerability to natural hazards	10/10 $\times 0.10$ $= 0.10$
Area of the Site	15%	Approx. 5 hectares	10/10 $\times 0.15$ $= 0.15$	Approx. 5 hectares	10/10 $\times 0.15$ $= 0.15$	Approx. 5 hectares	10/10 $\times 0.15$ $= 0.15$
TOTAL	100%		0.815		0.875		0.75

CONCLUSION:

Based on the Multi-Criteria Analysis as shown in the table, it is concluded that site B would be the selected site based on the assessment of the different qualities that a site should possess in order for the proposed public market with a transportation terminal to function well.

SWOT ANALYSIS

	SITE A	SITE B	SITE C
STRENGTHS	It is an interior lot therefore it cannot directly contribute to the congestion in the highway	It is a through lot bounded by road with one going to Samboan and the other going to Toledo City, good location for bus terminal. Proximate to city center	Not directly connected to the main road which is good to avoid traffic congestion; government owned lot
WEAKNESSES	The road connecting to main road is narrow	Lot is not leveled to the road line, needs filling	Far from the city center which is not helpful for fast and accessible business transactions; road connecting to main road too narrow
OPPORTUNITIES	Large area	Walking distance from where the old market is located; large area	Adjacent road has only light traffic
THREATS	Variety of slopes, not relatively flat	Corner lot, considerations on planning for ingress and egress should be observed properly	Too proximate to hospital, might have a negative impact on this facility

SITE ANALYSIS



The above image is a photo taken from Google Earth, it shows the three proposed sites in relation with each other within Carcar city's scope. The figure shaded in red is the old public market just located within walking distance from the city's famous rotunda. This old public market in a positive sense, contributes in the city's economy, providing easy access of goods for buyers, and earnings for the vendors. On to the negative aspect this public market with a terminal for tricycle, which contributes in the traffic surrounding the rotunda, suffers from the lack of proper planning. There were various things which weren't taken into consideration, like the possibility of increased buyers and sellers who need more space to move around the facility, and the provision of lighting and ventilation without overlooking the need for good sanitation.

All kinds of vehicle pass through Carcar city's rotunda, which have a traffic problem due to an unorganized flow of public and private vehicles coming from three major roads. The road shaded in blue leads to Cebu City, while passing through San Fernando, Naga City, Minglanilla, and Talisay City. The Road shaded in orange leads to Barili, just south west of Cebu City. Lastly the Road shaded in green, leads to Argao, Dalaguete, and Alcoy. These three major roads connect Carcar City to the other major cities in cebu, it can also be called the city's life line, due to the fact that these roads carry the products which Carcar exports and imports from other places, and also the people who wants to see the tourist attractions which Carcar city has to offer.

HISTORICAL STRUCTURES OF CARCAR CITY:



PHOTOS OF CARCAR CITY'S FAMOUS ROTUNDA:



PHOTOS OF CARCAR CITY'S PUBLIC MARKET WITH TRICYCLE TERMINAL:

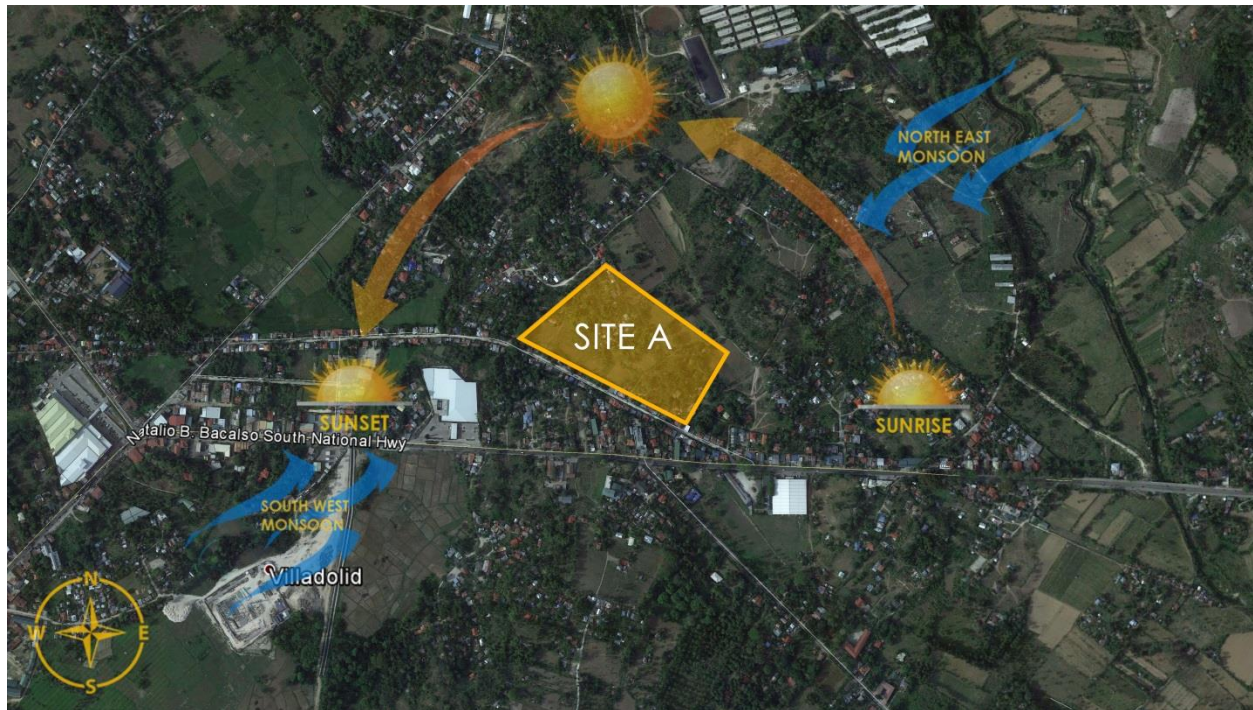
INDIVIDUAL SITE ANALYSIS

SITE A: Brgy. Villadolid, Carcar City, Cebu

TECHNICAL DESCRIPTION:

POINT	BEARING	LENGTH
1 – 2	N 50d E	205.74m
2 – 3	S 54d E	266.48m
3 – 4	S 31d W	147.34m
4 – 1	N 63d W	335.10m

SUN AND WIND ORIENTATION:



TRAFFIC MAP:



LAND USE MAP:



PHOTOS WITHIN SITE A:**PHOTOS NEAR SITE A:****INTERNAL:**

- The site has slightly varying slopes.
- Contains lush vegetation and a number of residences just within its boundaries.
- Site's estimated area is 5 hectares.

The site, having varying slopes, means there would be areas where water, in case of rain, would puddle up, these can be solved through proper landscaping and site development, but there will still be a need to flatten some of the site's grade so as to make it easier for the users of the public market and transportation terminal who possibly need a kind of surface where in goods and luggage can be easily moved around. The sites total area is big enough for constructing the proposed public market with transportation terminal.

EXTERNAL:

- The site is located at Barangay Villadolid, Carcar City, Cebu.
- Means of public transportation that could access the site at present are paid tricycles.
- On the site's borders are private residences which are built on each sides of an unpaved 5-6 meter wide road. This road connects to the Natalio B. Bacalso South National Highway which leads to cebu city.
- No Institutional facilities, like schools, hospital, churches and government buildings are present within 500 meters range from the site.
- A variety of Commercial establishments can be found surrounding the site, examples are: Gaisano Mall, 4-R store, Petron gasoline station, cooperative bank of Cebu, etc.
- Is mainly surrounded by Residential and Agricultural zones.
- Is located far from the populated area of Carcar city.

SITE B: Brgy. Poblacion III, Carcar City, Cebu**TECHNICAL DESCRIPTION:**

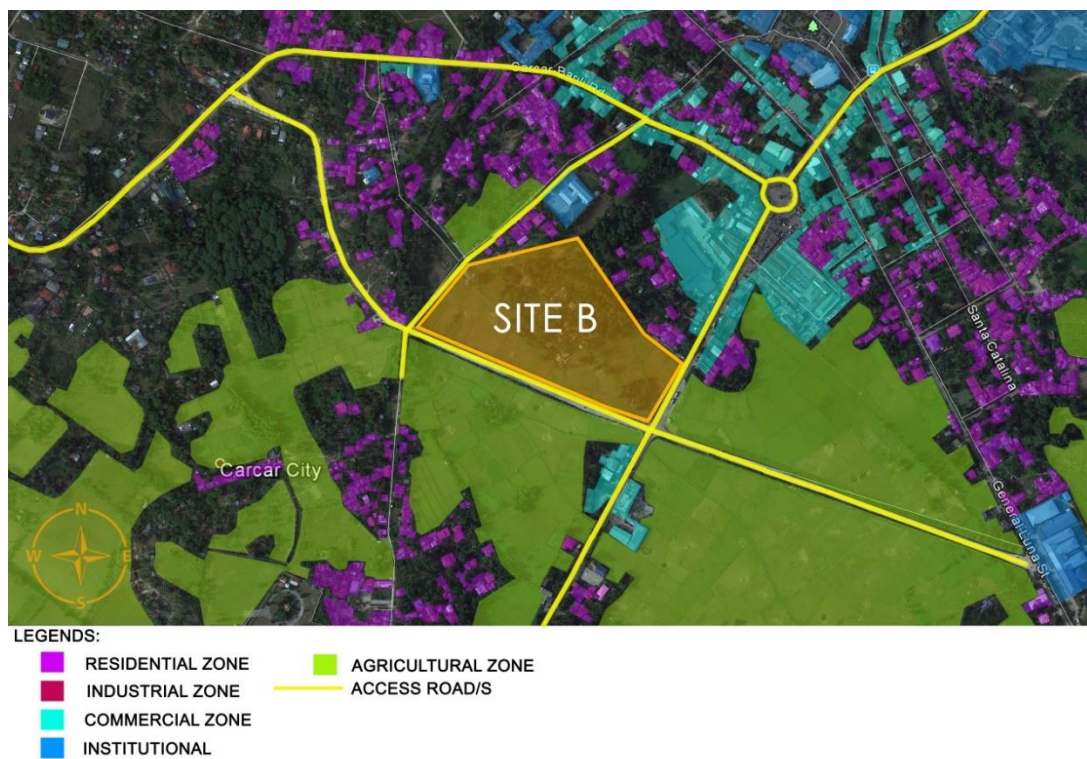
POINT	BEARING	LENGTH
1 – 2	N 39d E	115.10m
2 – 3	N 76d E	158.32m
3 – 4	S 34d E	161.29m
4 – 5	S 52d E	69.80m
5 – 6	S 31d W	95.85m
6 – 7	N 72d W	69.31m
7 – 1	N 67d W	279.46m

SUN AND WIND ORIENTATION:

TRAFFIC MAP:



LAND USE MAP:



PHOTOS WITHIN SITE B:**PHOTOS NEAR SITE B:**

INTERNAL:

- The site is an agricultural land, with paddy fields for planting rice.
- The lot is lower than the roads' baseline.
- Contains lush vegetation and a number of residences just within its boundaries.
- Sites' estimated area is 5 hectares

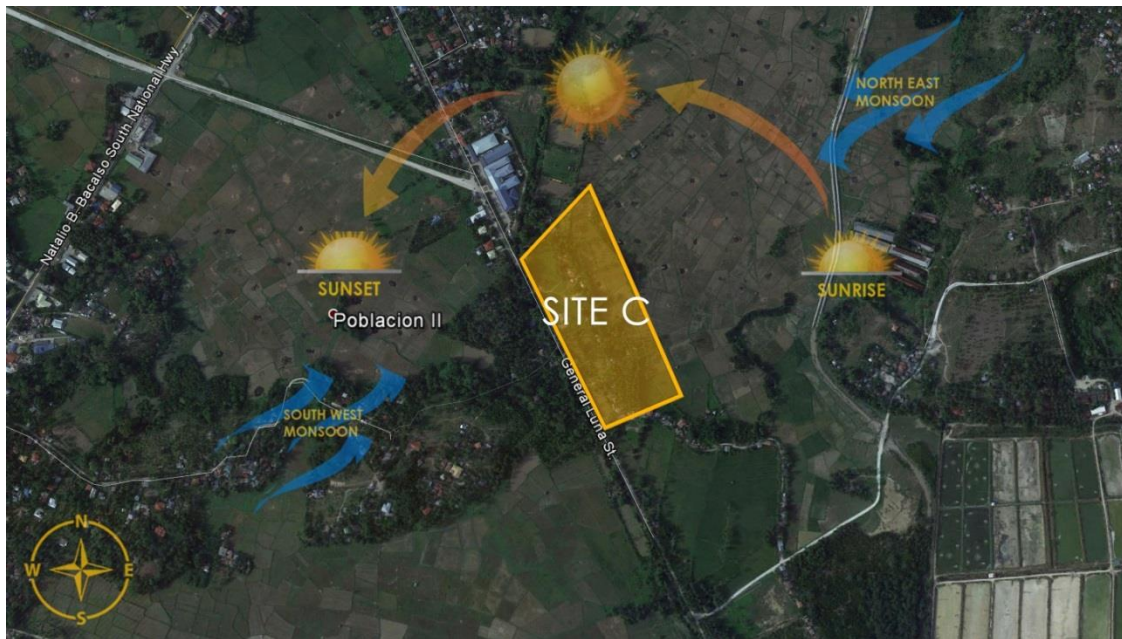
It can be concluded that since the lot is lower than the roads base line there will be a need to fill it or find an appropriate design that would fit such circumstance. The vegetation present within its boundaries should also be taken into consideration as to if it will be kept or will be taken out. The site is privately owned but through government acquisition the land can be used for the construction of the public market and transportation terminal, within the basis of Public-Private Partnership.

EXTERNAL:

- The site is located in Barangay Poblacion III, Carcar City, Cebu.
- Means of public transportation that can access the site are paid tricycles.
- The site is bounded by two major roads which make it into a corner lot.
- One of its roads connects to the road going to Barili while the other road, the Natalio B. Bacalso South National Highway, leads to Argao.
- The old public market is just walking distance from this site.
- The site is surrounded by Agricultural lots.
- No Institutional facilities, like schools, hospital, churches and government buildings are present within 500 meters range from the site.
- A variety of Commercial establishments can be found proximately near the site, examples are: Savemore supermarket, Jolibee, BDO, 7-eleven, etc.

SITE C: Brgy. Poblacion II, Carcar City, Cebu**TECHNICAL DESCRIPTION:**

POINT	BEARING	LENGTH
1 – 2	N 43d E	169.15m
2 – 3	S 24d E	375.67m
3 – 4	S 66d W	138.06m
4 – 1	N 27d W	332.83m

SUN AND WIND ORIENTATION:

LEGENDS:

- MODERATE TRAFFIC
- LIGHT TRAFFIC
- HEAVY TRAFFIC

Map of the study area showing land use zones and access roads. The map includes a compass rose indicating North (N), South (S), East (E), and West (W). The legend identifies five land use zones: Residential Zone (pink), Industrial Zone (red), Commercial Zone (cyan), Institutional (blue), and Agricultural Zone (green). Access roads are shown as yellow lines. The map also labels 'Poblacion II' and 'SITE C'.

PHOTOS SURROUNDING SITE C:**INTERNAL:**

- The site has slightly varying slopes.
- Contains lush vegetation and a number of residences just within its boundaries.
- Site's estimated area is 5 hectares.

If viewed from above the site contains vegetation that seems to be a kind of landscape buffer which separates the agricultural land to the General Luna Street. Due to these facts it is hard to create a fact based observation on the site's topography. What can only be concluded is that the site is Government owned and thus can be freely used as the proposals site.

EXTERNAL:

- The site is located in Barangay Poblacion II, Carcar City, Cebu.
- Means of public transportation that can access the site are paid tricycles.
- Only one road, the General Luna Street, lead to Site C.
- The site is surrounded by Agricultural lots.
- The Jesus M. Param Memorial District Hospital is just beside Site C.
- The Commercial establishments are located far from the sites proximity.

SPACE PROGRAMMING**A. SPACE REQUIREMENTS****MARKET HALL**

WET SECTION			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
BEEF STALLS	A space for the preparation and transaction of meat from a cow, bull or steer. This includes the storing, chopping, cleaning, displaying, weighing, cutting and packaging of sold items.	Public	Butcher Wholesalers/Retailers
PORK STALLS	A space for the preparation and transaction of meat from hog, boar or similar animals. This includes the storing, chopping, cleaning, displaying, weighing, cutting and packaging of sold items.	Public	Butcher Wholesalers/Retailers
POULTRY STALLS	A space for the preparation and transaction of meat from domestic fowl. This includes the storing, chopping, cleaning, displaying, weighing, cutting and packaging of sold items.	Public	Butcher Wholesalers/Retailers
SEAFOOD STALLS	A space for the preparation and transaction of fish and shellfish. This includes the storing, chopping, cleaning, displaying, weighing, cutting and packaging of sold items.	Public	Fishmonger Wholesalers/Retailers
SEMI-WET SECTION			
FLOWER STALLS	A space for the preparation and transaction of different flowers. This includes the storing, watering, displaying, cutting and packaging of sold items.	Public	Greengrocer Wholesalers/Retailers

FRUIT STALLS	A space for the preparation and transaction of different bearing plants. This includes the storing, watering, displaying, cutting and packaging of sold items.	Public	Greengrocer Wholesalers/Retailers
VEGETABLE SECTIONS	A space for the preparation and transaction of different vegetables. This includes the storing, watering, displaying, cutting and packaging of sold items.	Public	Greengrocer Wholesalers/Retailers

DRY SECTION			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
GRAIN STALLS	A space for the preparation and transaction of different grains. This includes the storing, watering, displaying, cutting and packaging of sold items.	Public	Entrepreneurs/Concessionaires, Laborers and Consumers
CLOTHING AND TEXTILE STALLS	A space for the preparation and transaction of different clothing and textiles. This includes the storing, displaying, cutting and packaging of sold items.	Public	Entrepreneurs/Concessionaires, Laborers and Consumers
FOOTWEAR STALLS	A space for the preparation and transaction of different footwear. This includes the storing, displaying, cutting and packaging of sold items.	Public	Entrepreneurs/Concessionaires, Laborers and Consumers
HANDICRAFT STALLS	A space for the preparation and transaction of different handicraft items. This includes the storing, displaying, cutting and packaging of sold items.	Public	Entrepreneurs/Concessionaires, Laborers and Consumers
GENERAL MERCHANDISE STALLS	A space for the preparation and transaction of different materials and merchandise.	Public	Entrepreneurs/Concessionaires, Laborers and Consumers

	This includes the storing, watering, displaying, cutting and packaging of sold items.		
GROCERY STALLS	A space for the preparation and transaction of different food and non-food items. This includes the storing, watering, displaying, cutting and packaging of sold items.	Public	Entrepreneurs/Concessionaires, Laborers and Consumers
TOILETS	It caters the personal hygiene of the consumers. This includes use of toilets, washing of hands and the like.	Private	Entrepreneurs/Concessionaires, Laborers and Consumers

TRADING HALL			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
DELIVERY BAY	A space for the delivery of goods and products. This includes unloading of cargos from delivery trucks.	Semi-Private	Traders
SAFETY INSPECTION AREA	A space for the inspection of goods and products. This includes checking, stamping and issuance of safety clearance.	Semi-Private	Traders and Market Inspector
WEIGHING AREA	A space for the weighing of goods and products. This includes receiving of payment and issuance of receipt based from weigh in.	Semi-Private	Traders and Market Collectors
TRANSACTION AREA	A space for the transaction of goods and products. This includes receiving of payment and issuance of receipt.	Semi-Public	Entrepreneurs/Concessionaires, Laborers and Consumers
TOILETS	It caters the personal traders. This includes use of toilets, washing of hands and the like.	Private	Traders

STORAGE			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
ICE	A space for storing of ice. This includes transferring of ice to the market.	Private	Utility Personnel
LIGHTFREEZE	A space for storing of goods and products requiring light freeze temperature. This includes transferring of goods and products to the market.	Private	Utility Personnel
MODERATE FREEZE	A space for storing of goods and products requiring moderate freeze temperature. This includes transferring of goods and products to the market.	Private	Utility Personnel
SEVERE FREEZE	A space for storing of goods and products requiring severe freeze temperature. This includes transferring of goods and products to the market.	Private	Utility Personnel
DRY	A space for storing of goods and products requiring dry temperature. This includes transferring of goods and products to the market.	Private	Utility Personnel

EATERY AREA			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
FOOD DISPLAY AND BEVERAGE COUNTER	It caters cooked food and different beverages. This includes ordering and serving food and beverage.	Public	Laborers and Diners
PAYMENT COUNTER	It caters the transaction of food items. This includes	Public	Cashier and Diners

	receiving of payment and issuance of receipt.		
KITCHEN	This caters food preparation, cooking and serving. It also includes dishwashing and the like.	Private	Laborers
PANTRY	It caters the storing of food and utensils for food preparation.	Semi-Private	Laborers
DINING AREA	It caters eating in an enclosed or open area.	Public	Diners
WASHING AREA	This includes washing of hands and the like.	Semi-Private	Laborers and Diners

TRANSITORY AREA			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
LOBBY	A space for circulation, a starting point towards the other spaces inside.	Public	Customers
INFORMATION CENTER	A space for customers with queries.	Public	Clerk
TOILETS	It caters to the personal hygiene of the customers. This includes use of toilets, washing of hands and the like.	Private	Customers
MAIN STORAGE	A space for the storing of goods and products.	Private	Utility Personnel

ADMINISTRATION AREA			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
MARKET ADMINISTRATOR'S OFFICE	A space for the market administrator.	Private	Market Administrator
MARKET INSPECTOR'S OFFICE	A space for the market inspector.	Private	Market Inspector

MARKET COLLECTOR'S OFFICE	A space for the market collector.	Private	Market Collector
VENDOR'S ASSOCIATION ROOM	A space where vendors can discuss about matters for the market such as announcements, memorandums and the like.	Semi-Public	Administrative Personnel, Vendors and Concerned People
CONFERENCE ROOM	A space for conferences that needs immediate action such as reports, memorandums and the like.	Semi-Public	Administrative Personnel and Concerned People
PANTRY	A space where the personnel can prepare food and do simple cooking.	Semi-Private	Administrative Personnel
SECURITY OFFICE	A space for the officer/s in charge of the security of the facility.	Private	Security Personnel
ELECTRICAL ROOM	A space for electrical equipment.	Private	Electrical Personnel
MAINTENANCE ROOM	A space for maintenance equipment.	Private	Maintenance Personnel
SANITATION ROOM	A space for sanitation equipment.	Private	Sanitation Personnel
TOILETS	It caters to the personal hygiene of the administrative personnel. This includes use of toilets, washing of hands and the like.	Private	Administrative Personnel, Service Personnel and Concerned People

PUBLIC TRANSPORTATION TERMINAL			
SPACES	FUNCTIONS AND ITS ACTIVITIES	CLASSIFICATIONS	USERS
LOBBY	A space for circulation, a starting point towards the other spaces inside.		
UNLOADING AREA	A space for the unloading of the passengers. This connects the passengers to	Public	Drivers and Passengers

	the market or other modes of public transportation.		
LOADING AREA	A space for the boarding passengers preparing to leave the terminal.	Public	Drivers and Passengers
WAITING AREA	A space that caters the waiting passengers. They may do other things while waiting like reading newspapers, attending to their needs and the like.	Public	Passengers
QUEUING AREA	A space for the queuing passengers preparing to leave the terminal.	Public	Passengers
TICKETING BOOTH	A space for the transaction of tickets for passengers to be able to board a certain public transportation vehicle. This includes receiving of payment and issuance of receipt.	Semi-Public	Cashier and Passengers
SERVICE STATION	A space for public transportation with mechanical problems. This includes repairing of engines and its parts, vulcanizing and the like.	Semi-Private	Drivers
DRIVER'S LOUNGE	A space where drivers can relax and attend to their needs.		
TOILETS	It caters to the personal hygiene of the passengers/drivers. This includes use of toilets, washing of hands and the like.	Private	Drivers and Passengers

WET SECTION						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL AREA (sq.m)
BEEF STALLS	3	1.35	4.05	30%	1.215	5.265
PORK STALLS	3	1.35	4.05	30%	1.215	5.265
POULTRY STALLS	3	1.35	4.05	30%	1.215	5.265
SEAFOOD STALLS	3	1.35	4.05	30%	1.215	5.265
SEMI-WET SECTION						
FLOWER STALLS	3	1.35	4.05	30%	1.215	5.265
FRUIT STALLS	3	1.35	4.05	30%	1.215	5.265
VEGETABLES	3	1.35	4.05	30%	1.215	5.265

DRY SECTION						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL AREA (sq.m)
GRAIN STORES	3	2	6	30%	1.8	7.8
CLOTHING AND TEXTILE STORES	5	2	10	30%	3	12
FOOTWEAR STORES	5	2	10	30%	3	12
HANDICRAFT STORES	5	2	10	30%	3	12
GENERAL MERCHANDISE STORES	5	2	10	30%	3	13
GROCERY STORES	5	2	10	30%	3	13

TRADING HALL						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL AREA (sq.m)
DELIVERY BAY	5	35	175	30%	52.5	227.5
SAFETY INSPECTION AREA	8	30	240	30%	72	312
WEIGHING AREA	8	30	240	30%	72	312
TRANSACTION AREA	50	0.45	22.5	30%	6.75	29.25

STORAGE						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL AREA (sq.m)
ICE	1	4.65	4.65	30%	1.395	6.045
LIGHT FREEZE	1	4.65	4.65	30%	1.395	6.045
MODERATE FREEZE	1	4.65	4.65	30%	1.395	6.045
SEVERE FREEZE	1	4.65	4.65	30%	1.395	6.045
DRY	1	4.65	4.65	30%	1.395	6.045

EATERY AREA/ CARINDERIA						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL AREA (sq.m)
FOOD DISPLAY AND BEVERAGE COUNTER	3	5.02	15.06	30%	4.518	19.578

PAYMENT COUNTER	3	5.02	15.06	30%	4.518	19.578
KITCHEN	3	12.5	37.5	30%	11.25	48.75
PANTRY	3	5.4	16.2	30%	4.86	21.06
DINING AREA	20	1.62	32.4	30%	9.72	42.12
WASHING AREA	5	1.2	6	30%	1.8	7.8

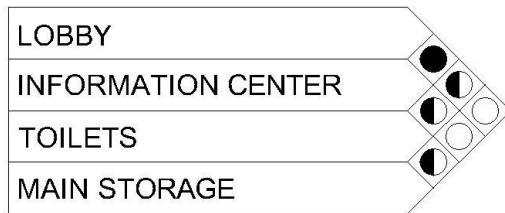
TRANSITORY AREA						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL AREA (sq.m)
PORCH	150	0.63	94.5	30%	28.35	122.85
LOBBY	150	0.6	90	30%	27	117
INFORMATION CENTER	1	5.02	5.02	30%	1.506	6.526
TOILETS	15	1.67	25.05	30%	7.515	32.565
MAIN STORAGE	4	5.02	20.08	30%	6.24	27.04

ADMINISTRATION AREA						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL AREA (sq.m)
MARKET ADMINISTRATOR'S OFFICE	1	4.2	4.2	30%	1.26	5.46
MARKET INSPECTOR'S OFFICE	2	4.2	8.4	30%	2.52	10.92
MARKET COLLECTOR'S OFFICE	2	4.2	8.4	30%	2.52	10.92

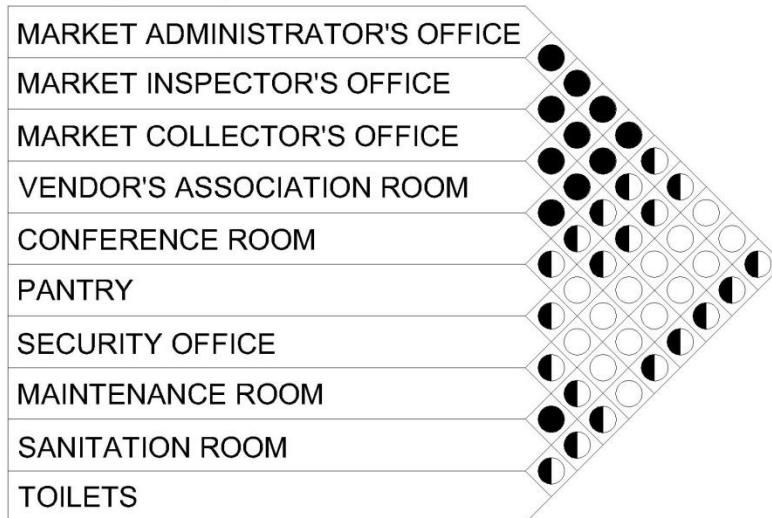
VENDOR'S ASSOCIATION ROOM	10	1.5	15	30%	4.5	19.5
CONFERENCE ROOM	8	1.5	12	30%	3.6	15.6
PANTRY	10	1	10	30%	4.5	5.5
SECURITY OFFICE	5	3	15	30%	4.5	7.5
ELECTRICAL ROOM	1	4	4	30%	1.2	5.2
MAINTENANCE ROOM	2	4	8	30%	2.4	6.4
SANITATION ROOM	2	4	8	30%	2.4	6.4
TOILETS	10	1.67	16.7	30%	5.01	21.71

PUBLIC TRANSPORTATION TERMINAL						
SPACES	NO. OF USERS	UNIT AREA PER USER	AREA OF USER (sq.m)	CIRCULATION	CIRCULATORY AREA (sq.m)	TOTAL USER AREA (sq.m)
UNLOADING AREA	370	0.6	222	30%	66.6	288.6
LOADING AREA	300	0.54	162	30%	48.6	210.6
WAITING AREA	300	0.65	195	30%	58.5	253.5
QUEUEING AREA	300	0.45		30%		
SERVICE STATION	3	5.02	15.06	30%	4.518	19.578
DRIVER'S LOUNGE	15	5	75	30%	22.5	97.5
TOILETS	20	1.67	33.4	30%	10.02	43.42

TRANSITORY AREA



ADMINISTRATION AREA



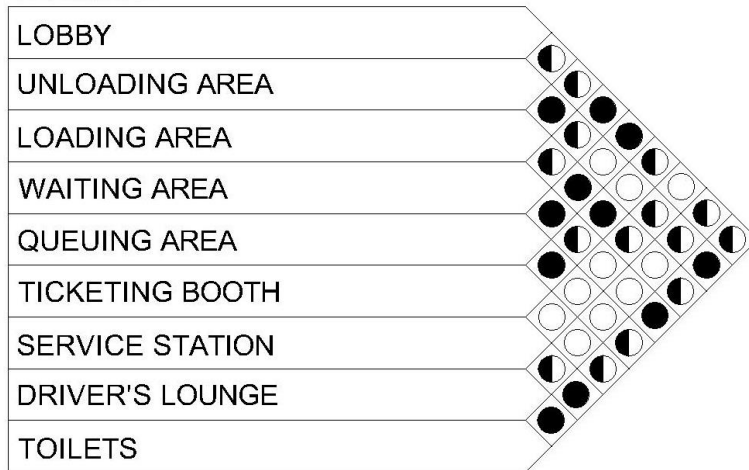
LEGENDS

- CLOSELY RELATED
- ◐ RELATED
- NOT RELATED

The Transitory Area is a space for circulation, a starting point towards the other spaces inside. This is where customers with queries can ask for assistance.

The Administration Area is where the offices are located. This is where the officers, vendors and concerned people discuss about matters of the market such as announcements and memorandums.

TERMINAL



SITE SPACES

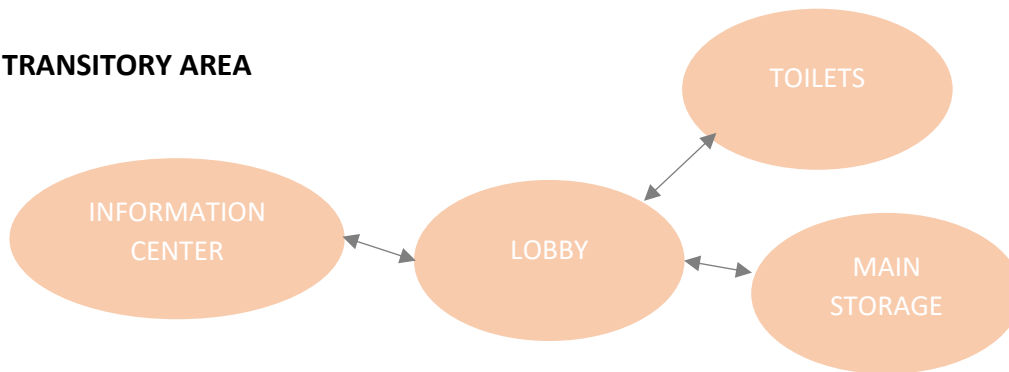
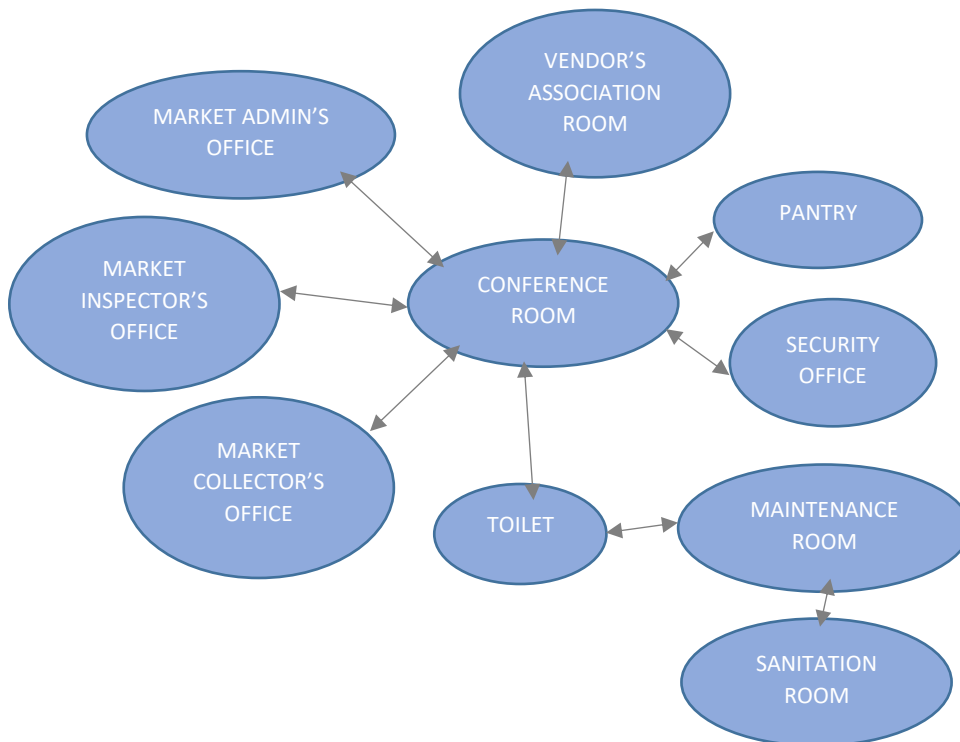


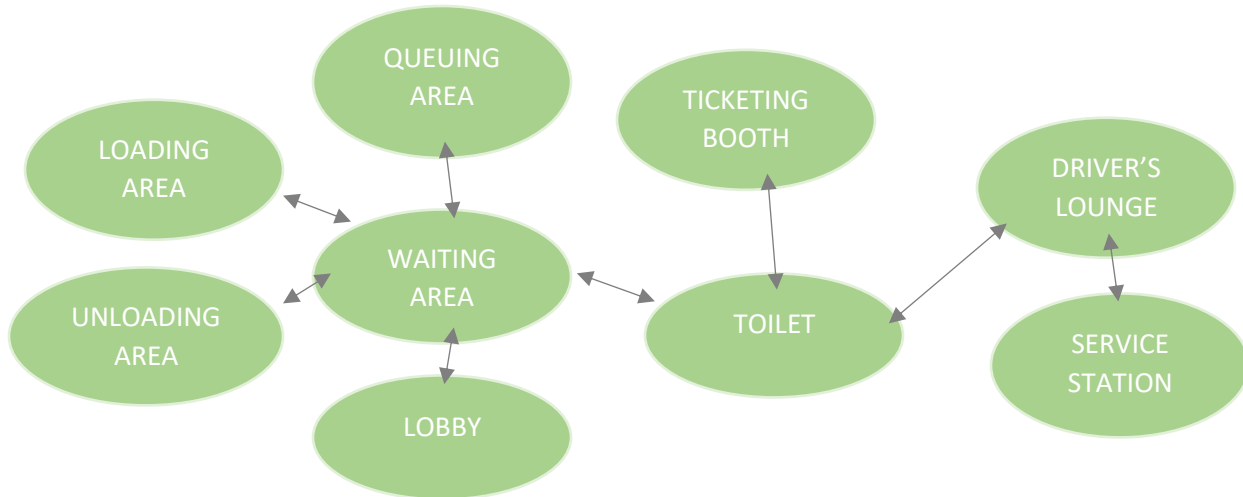
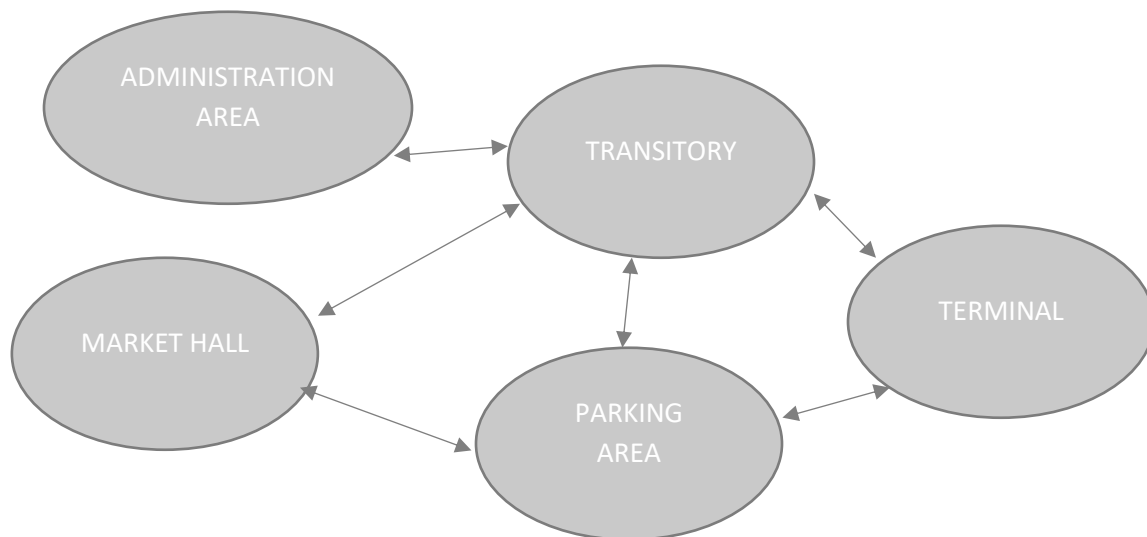
LEGENDS

- CLOSELY RELATED
- ◐ RELATED
- NOT RELATED

The terminal is where the different transport modes stop to pick up and drop off passengers. This is also where drivers and passenger stop over to rest and attend to their personal needs.

SPACE RELATIONSHIP DIAGRAM**MARKET HALL**

TRANSITORY AREA**ADMINISTRATION AREA**

TERMINAL**SITE SPACES**

FURNITURE REQUIREMENTS**PUBLIC MARKET**

WET SECTION						
SPACES	FIXTURES/ FURNITURE	QUAN- TITY	WIDTH	LENGTH	HEIGHT	AREA OF FIXTURE/ FURNITURE (sq.m)
Beef/Pork/Poultry/ Seafood Stalls	Trash Bin	2	0.3	0.3	1	0.18
	Storage	3	0.6	0.8	0.6	1.44
	Meat Block	1	0.6	0.825	1	0.495
	Sink and Basin	1	0.6	0.825	0.6	0.495
	Display Table	1	0.8	2	0.9	1.6
	Chairs	3	0.3	0.3	0.65	0.27
Total Furniture Area of Each stalls						4.48

SEMI- WET SECTION						
SPACES	FIXTURES/ FURNITURE	QUAN- TITY	WIDTH	LENGTH	HEIGHT	AREA OF FIXTURE/ FURNITURE (sq.m)
Flower Stalls	Trash Bin	2	0.3	0.3	1	0.18
	Storage	1	0.8	1	0.9	0.8
	Chest	1	0.5	1.5	1.4	0.75
	Sink and Basin	1	0.6	0.825	0.9	0.495
	Display Shelves	2	0.75	1.2	1.95	1.8
	Display Racks	2	0.63	1.2	1.2	1.512
	Cutting Block	1	0.4	0.55	0.95	0.22
	Chairs	3	0.75	0.6	0.75	1.35
	Desk	1	0.75	1	0.75	0.75
Total Furniture Area of Each stalls						7.857
Fruit/ Vegetable Stalls	Trash Bin	2	0.3	0.3	1	0.18
	Storage	3	0.4	0.6	0.9	0.72
	Sink And Basin	1	0.6	0.825	0.9	0.495
	Display Table	1	0.8	2	0.9	1.6
	Chairs	3	0.3	0.3	0.625	0.27
Total Furniture Area of Each stalls						3.265

DRY SECTION						
SPACES	FIXTURES/ FURNITURE	QUAN- TITY	WIDTH	LENGTH	HEIGHT	AREA OF FIXTURE/ FURNITURE (sq.m)
Grain Sections	Trash Bin	2	0.3	0.3	1	0.18
	Storage	1	0.8	1	0.9	0.8
	Chest	1	0.5	1.5	1.4	0.75
	Display Racks	2	0.63	1.2	1.2	1.512
	Weighing Table	1	0.5	0.5	N/A	0.25
	Chairs	3	0.75	0.6	0.75	1.35
	Desk	1	0.75	1	0.75	0.75
Total Furniture Area of Each stalls						11.8
Clothing and Textile Stores	Trash Bin	2	0.3	0.3	1	0.18
	Storage	1	2	3	3	6
	Display Bars	6	0.4	1.5	1.2	3.6
	Display Shelves	3	0.75	1.2	1.95	2.7
	Chairs	3	0.3	0.3	0.65	0.27
	Desk	1	0.75	1	0.75	0.75
Total Furniture Area of Each stalls						
Footwear/ Handicraft/ General Merchandise/ Grocery Stores	Trash Bin	2	0.3	0.3	1	0.18
	Storage	1	2	3	3	6
	Display Shelves	8	0.75	1.2	1.95	7.2
	Display Tables	3	0.6	0.9	0.45	1.62
	Chairs	3	0.3	0.3	0.65	0.27
	Desk	1	0.75	1	0.75	0.75
Total Furniture Area of Each stalls						

EATERY AREA						
SPACES	FIXTURES/ FURNITURE	QUAN- TITY	WIDTH	LENGTH	HEIGHT	AREA OF FIXTURE/ FURNITURE (sq.m)
Food Display and Beverage Counter	Display Counter	1	0.6	2	1.2	1.2
	Refrigerator	1	0.525	0.575	1.25	0.3
Payment Counter	Desk	1	0.6	2	1.2	1.2
Kitchen	Storage	1	1.5	2	3	3
	Refrigerator	1	0.525	0.575	1.25	0.3
	Wall Cabinet	2	0.4	2.15	2.1	1.72
	Sink and Basin	2	0.525	2.15	0.9	2.26
	Preparation Table	1	0.525	1.5	0.9	0.78
	Range	1	0.6	0.75	0.9	0.45
	Serving Table	1	0.525	1.5	0.9	0.78
Pantry	Table	1	0.525	1.5	0.9	0.78
Dining Area	Dining Tables	5	0.7	0.7	0.9	2.45
	Chairs	20	0.45	0.45	0.65	4.05
Washing Area	Lavatories	2	0.4	0.475	0.9	0.38
Total Furniture Area of Each stalls						19.65

TRANSITORY AREA						
SPACES	FIXTURES/ FURNITURE	QUAN- TITY	WIDTH	LENGTH	HEIGHT	AREA OF FIXTURE/ FURNITURE (sq.m)
Porch	N/A					
Lobby	N/A					
Information Center	Desk	1	0.75	1.5	0.725	1.125
	Chair	1	0.45	0.5	0.95	0.225
Toilets	Lavatories	4	0.4	0.475	0.9	0.38
	Water Closets	7	0.676	0.363	0.816	1.22
	Urinals	3	0.335	0.345	1.03	0.34
	Floor mop sink	2	0.525	0.525	0.8	0.55
Main Storage	N/A					
Total Furniture Area						3.84

ADMINISTRATION AREA						
SPACES	FIXTURES/ FURNITURE	QUAN- TITY	WIDTH	LENGTH	HEIGHT	AREA OF FIXTURE/ FURNITURE (sq.m)
Market Administra- tor's/ Inspector's/ Collector's Office	Chairs	8	0.45	0.45	0.45	1.62
	Desk	5	0.75	1.5	0.75	5.625
	Cabinet	3	0.55	1	1.4	1.65
Vendors Association Room	Chairs	12	0.45	0.45	0.45	2.43
	Desk	5	0.75	1.5	0.75	5.625
	Cabinet	1	0.55	1	1.4	0.55
Conference Room	Table	1	1	1.2	0.9	1.2
	Chairs	8	0.45	0.45	0.45	1.62
Pantry	Wall Cabinet	1	0.4	2.15	2.1	0.86
	Sink and Basin	1	0.525	2.15	0.9	1.23
	Table	1	1	0.525	1.5	0.525
Security Office, Electrical , Maintenance and Sanitation Room	Chairs	6	0.45	0.45	0.45	1.215
	Desk	3	0.75	1.5	0.75	3.375
	Cabinet	3	0.55	1	1.4	1.65
Toilets	Lavatories	4	0.4	0.475	0.9	0.855
	Water Closets	5	0.676	0.363	0.816	1.23
	Urinals	3	0.335	0.345	1.03	0.35
	Floor mop sink	2	0.525	0.525	0.8	0.55
Total Furniture Area						32.16

PUBLIC TRANSPORTATION TERMINAL						
SPACES	FIXTURES/ FURNITURE	QUAN- TITY	WIDTH	LENGTH	HEIGHT	AREA OF FIXTURE/ FURNITURE (sq.m)
Unloading Area	N/A					
Loading Area	N/A					
Waiting Area	Chairs	300	0.45	0.5	0.45	60.75
Queuing Area	N/A					
Service Station	Storage	1	2	3	0.45	6
Driver's Lounge	3 Seater sofa	2	0.9	2.1	0.9	1.89
	1 Seater sofa	4	0.9	0.9	0.9	1.62
Toilets	Lavatories	4	0.4	0.475	0.9	0.76
	Water Closets	7	0.676	0.363	0.816	1.72
	Urinals	3	0.335	0.345	1.03	0.35
	Floor mop sink	2	0.525	0.525	0.8	0.55
Total Furniture Area						73.64

CHAPTER V: FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

THE SITE:



The site is located in Barangay Poblacion III, Carcar City, Cebu. officially the City of Carcar, is a 5th city income class component city in the province of Cebu. According to the 2015 census, it has a population of 119,664. In the 2016 election, it had 63,285 registered voters.

Carcar is considered one of the oldest towns in Cebu, with its Spanish influence lasted more than 300 years ago. It was known as "Sialao" since before the Spanish colonization, and became a municipality in 1599.

The city is located 40 kilometers south of Cebu City, and is bounded on the north by San Fernando, on the south by Sibonga, on the west by Barili and Aloguinsan, and on the east by the Cebu Strait. It has a land area of 116.78 square kilometers.

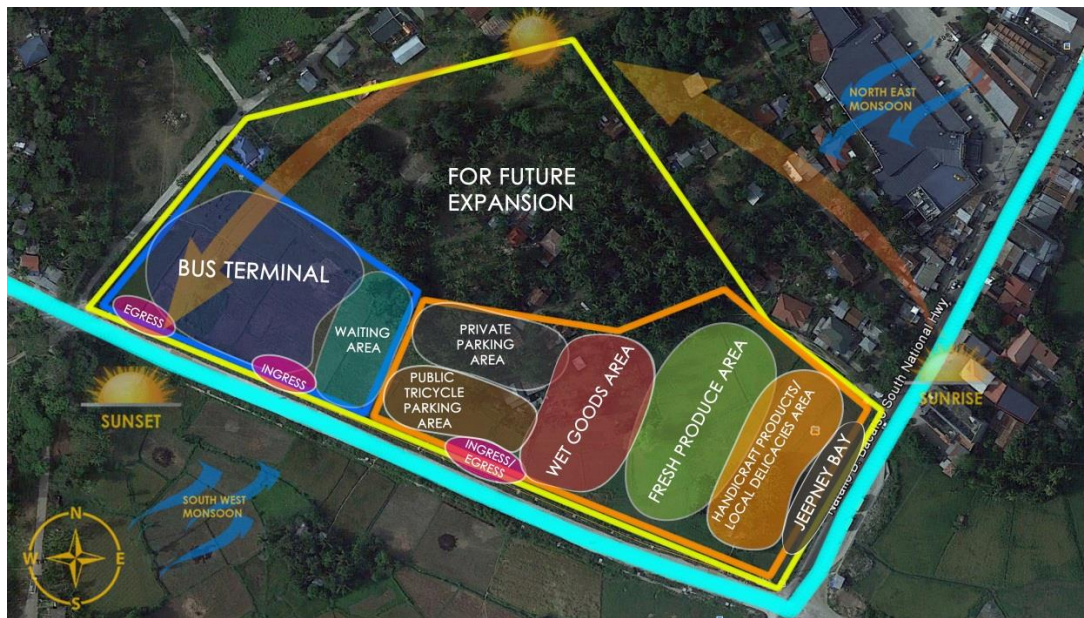
The land is generally level with less than 18% slope comprising 78.7% of the total land area. Areas with slopes ranging from 18 to 50% cover 19.3% of the total land area and those over 50% slopes comprise approximately 1.9%. The highest recorded elevation is a little over 660 meters above sea level, located within the barangay of Napo. (Wikipedia)

SITE ANALYSIS FOR THE SELECTED SITE: SITE B: Barangay Poblacion III, Carcar City, Cebu.**ZONING MAP WITH ANALYSIS ON VIEWS SURROUNDING THE SITE**

The site, which is located in Barangay Poblacion III, Carcar City, Cebu, is mostly surrounded by Agricultural lots, while the residential houses are scattered from the site's proximity, and the commercial establishments, mostly exist surrounding the City's famous rotunda. The old public market is just within walking distance from one of Site B's corners. This location which is bounded by two roads, one major, the Natalio B. Bacalso South National Highway, and the other a newly constructed road, with an estimated width of 7 meters, leads to the Carcar-Barili Road, means that Site B is a corner Lot.

SITE ZONING MAP:

SAMPLE 1:



LEGENDS:

TRANSPORTATION TERMINAL
PUBLIC MARKET

ACCESS ROAD/S
THE SITE

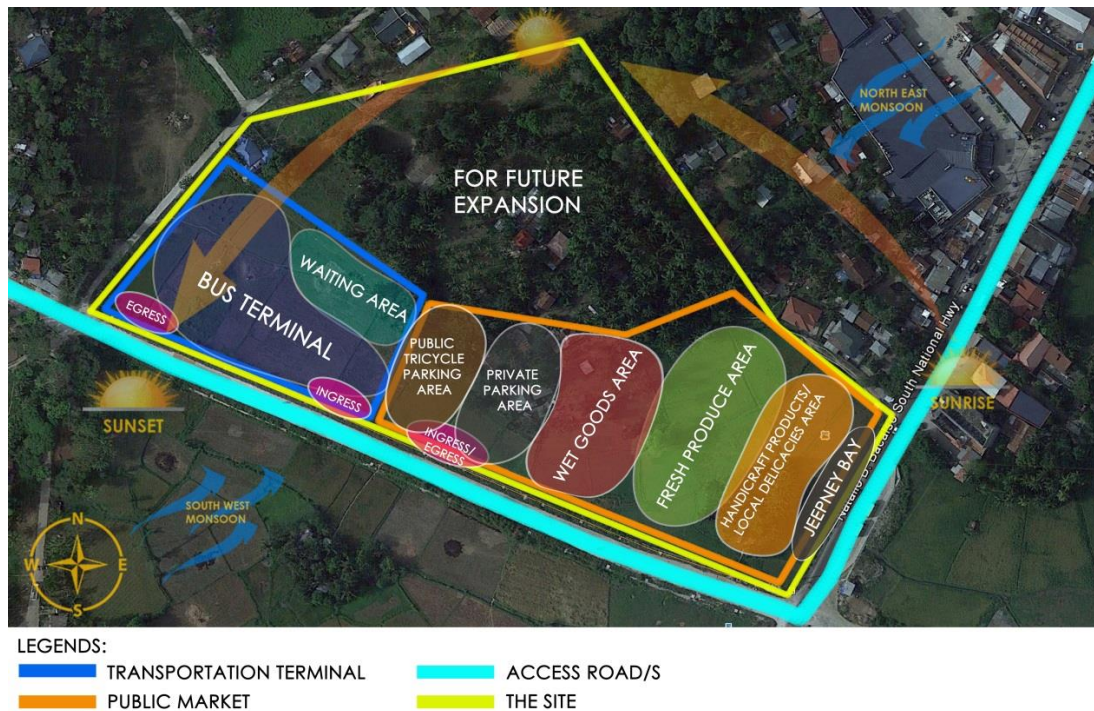
SAMPLE 2:



LEGENDS:

TRANSPORTATION TERMINAL
PUBLIC MARKET

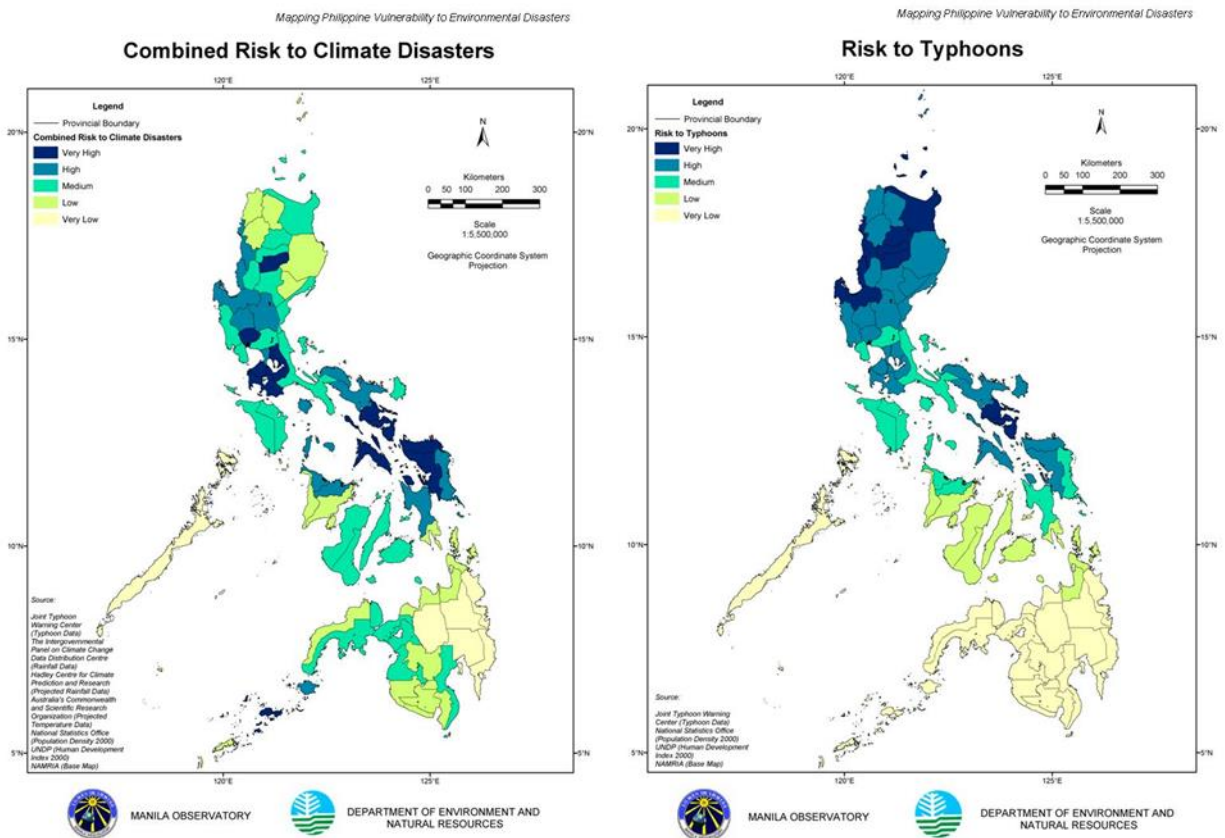
ACCESS ROAD/S
THE SITE

SAMPLE 3:**DISCUSSION:**

The above images are examples of the different variation of spaces within the site. The size of the bubbles within the site isn't scaled, this images only shows how the spaces would be located within its lot. Proper weighing of the merits and demerits of the samples would be done so as to find the most appropriate zoning that'll be used in the proposed project.

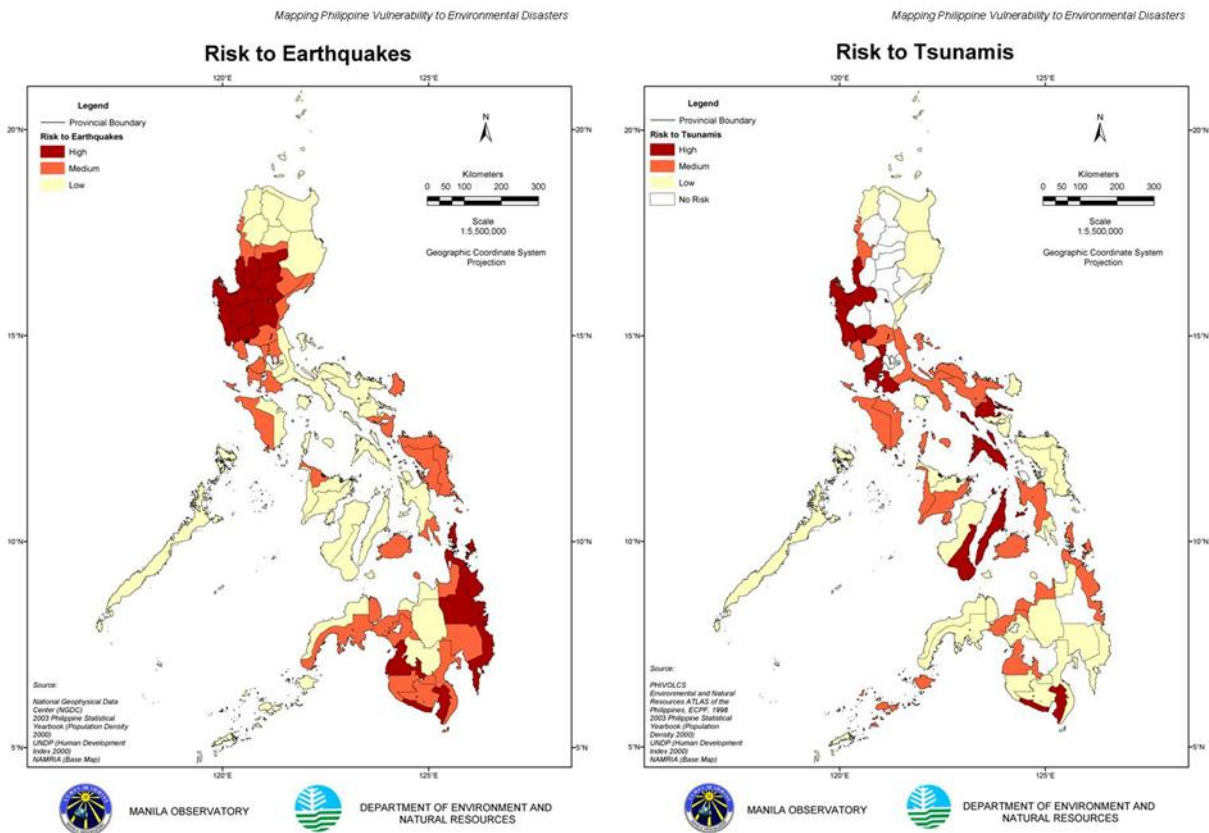
VULNERABILITY ASSESSMENT STUDY:

This study is needed in order to design better buildings and to create an orientation of facilities which are suitable within the site. It will also help in selecting building materials to be used in the construction of the buildings, materials that will not degrade due to the present weather, temperature, humidity climate, in the sites location. This study in addition will help in choosing the best site where the proposed public market with transportation terminal will be built or constructed.

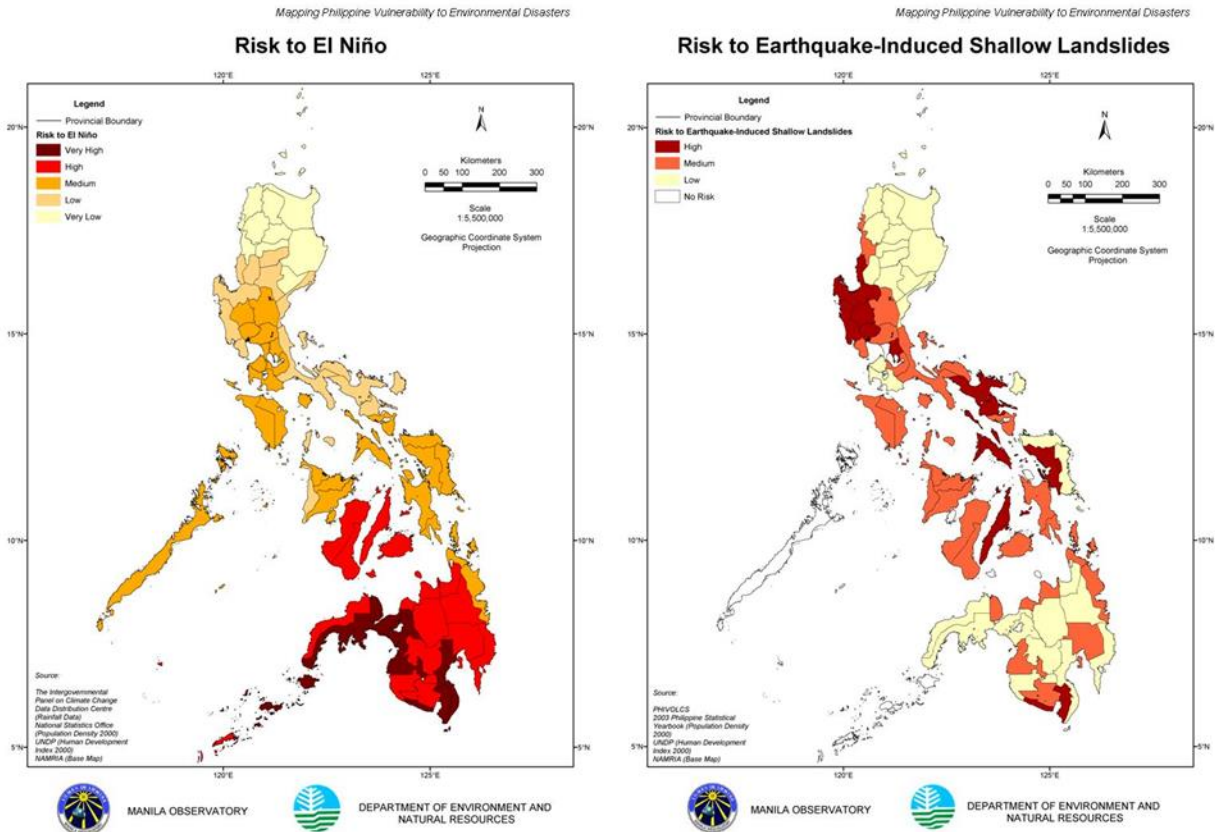


The proposed public market with transportation terminal, which is located within the island of Cebu, is under medium risk for climate disasters; therefore the project's design should be able to counter those risks without taking for granted the form and functionality of the project. For the risk in typhoon, Cebu ranked low, which means that the proposed project won't have to worry about being under the liabilities caused by typhoons. In conclusion knowing the climate in the

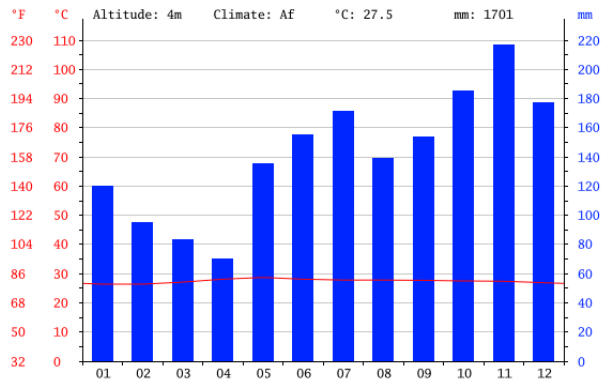
project's location will help in designing proper counter measures that'll make sure the project becomes feasible.



Cebu ranked as low risk for earthquakes, but it doesn't mean that it doesn't have fault lines. The site to be chosen should be far from this fault lines, because in-case of an earthquake it will definitely affect the building to be constructed in those sites and may also endanger the people using those buildings. If so those buildings are to be built near those fault lines, it should be made to withstand earthquakes. For risk to tsunamis, Cebu ranked as being high risk, this only means that although the chances are slim, the public market that'll be constructed should be at least far from coastal areas, so that in case a tsunami does occur, it will not affect the site and the proposed project.



Cebu ranked as high risk to El Niño; this means that the site that should be chosen should have access to water so that in case of El Niño the users of the public market will not suffer from drought. Cebu also ranked high on Risk to Earthquake induced Shallow landslides, due to this the site to be chosen for the proposed public market should be located somewhere safe from shallow landslides.

SUSTAINABILITY ANALYSIS OF SITE IN TERMS OF:**CARCAR CITY'S CLIMATE GRAPH**

Carcar city has a tropical climate with a significant rainfall even in the driest month.

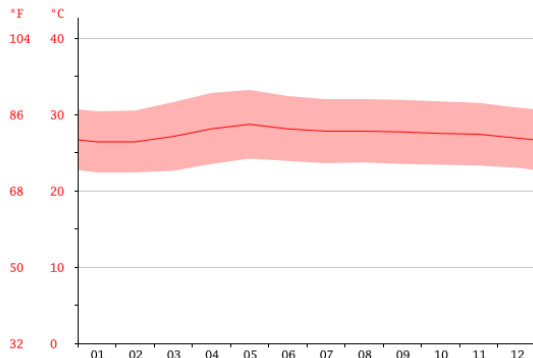
This climate is considered to be Af according to the KöppenGeiger climate classification.

In Carcar, the average annual temperature is 27.5 °C while the rainfall averages 1701 mm.

The least amount of rainfall occurs in April.

The average in this month is 70 mm. Most of

the precipitation here falls in November, averaging 217 mm. (Climate-data)

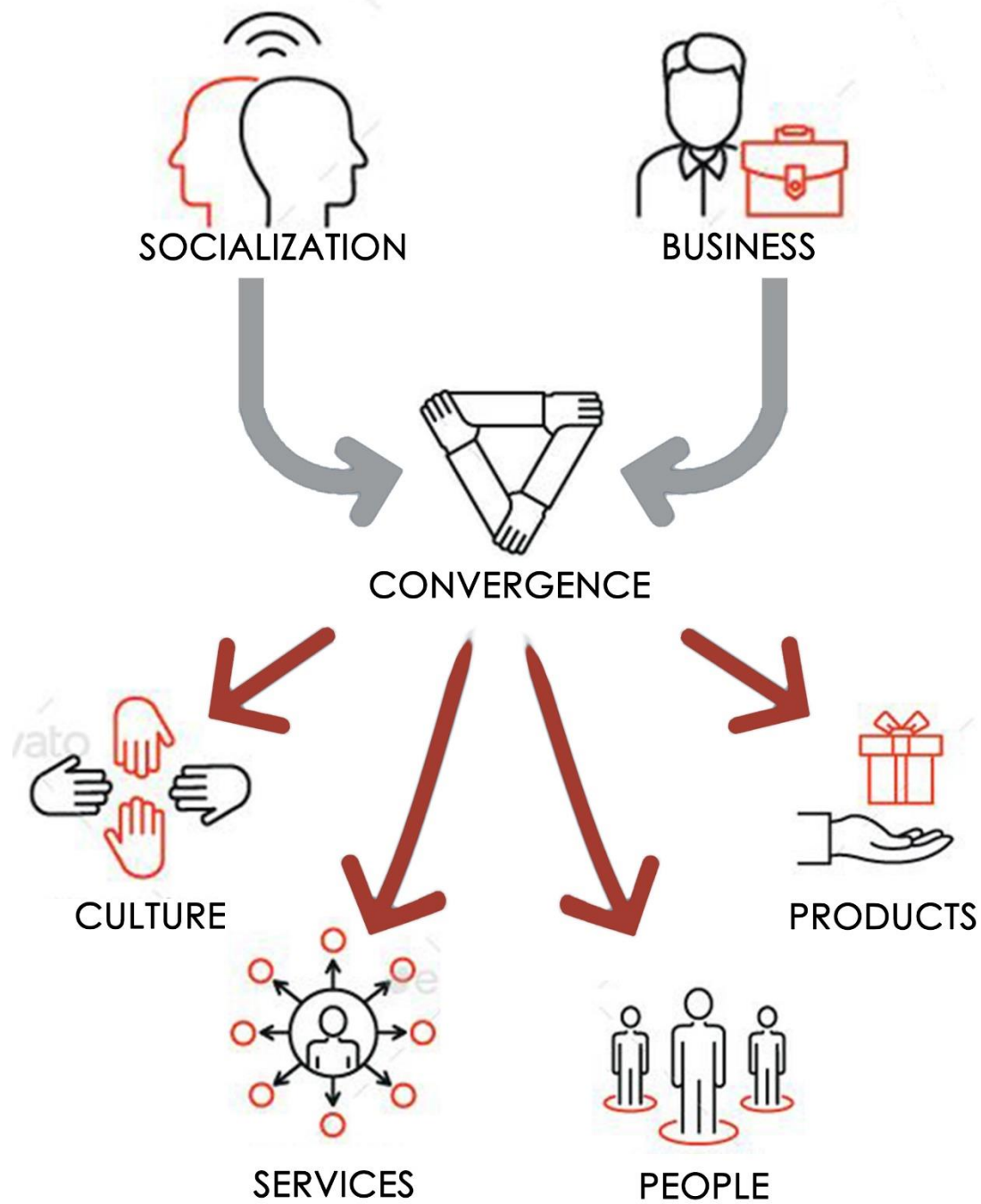
CARCAR CITY'S TEMPERATURE GRAPH:

The City's temperatures are highest on average in May, at around 28.7 °C, while in the coldest in the month of January, with temperatures averaging 26.4 °C. (Climate-data)

CARCAR CITY'S HISTORICAL WEATHER DATA:

month	1	2	3	4	5	6	7	8	9	10	11	12
mm	120	95	83	70	135	155	171	139	154	185	217	177
°C	26.4	26.4	27.1	28.1	28.7	28.1	27.8	27.8	27.7	27.5	27.4	26.9
°C (min)	22.4	22.4	22.6	23.5	24.2	23.9	23.6	23.7	23.5	23.4	23.3	23.0
°C (max)	30.4	30.5	31.6	32.8	33.2	32.4	32.0	32.0	31.9	31.7	31.5	30.9
°F	79.5	79.5	80.8	82.6	83.7	82.6	82.0	82.0	81.9	81.5	81.3	80.4
°F (min)	72.3	72.3	72.7	74.3	75.6	75.0	74.5	74.7	74.3	74.1	73.9	73.4
°F (max)	86.7	86.9	88.9	91.0	91.8	90.3	89.6	89.6	89.4	89.1	88.7	87.6

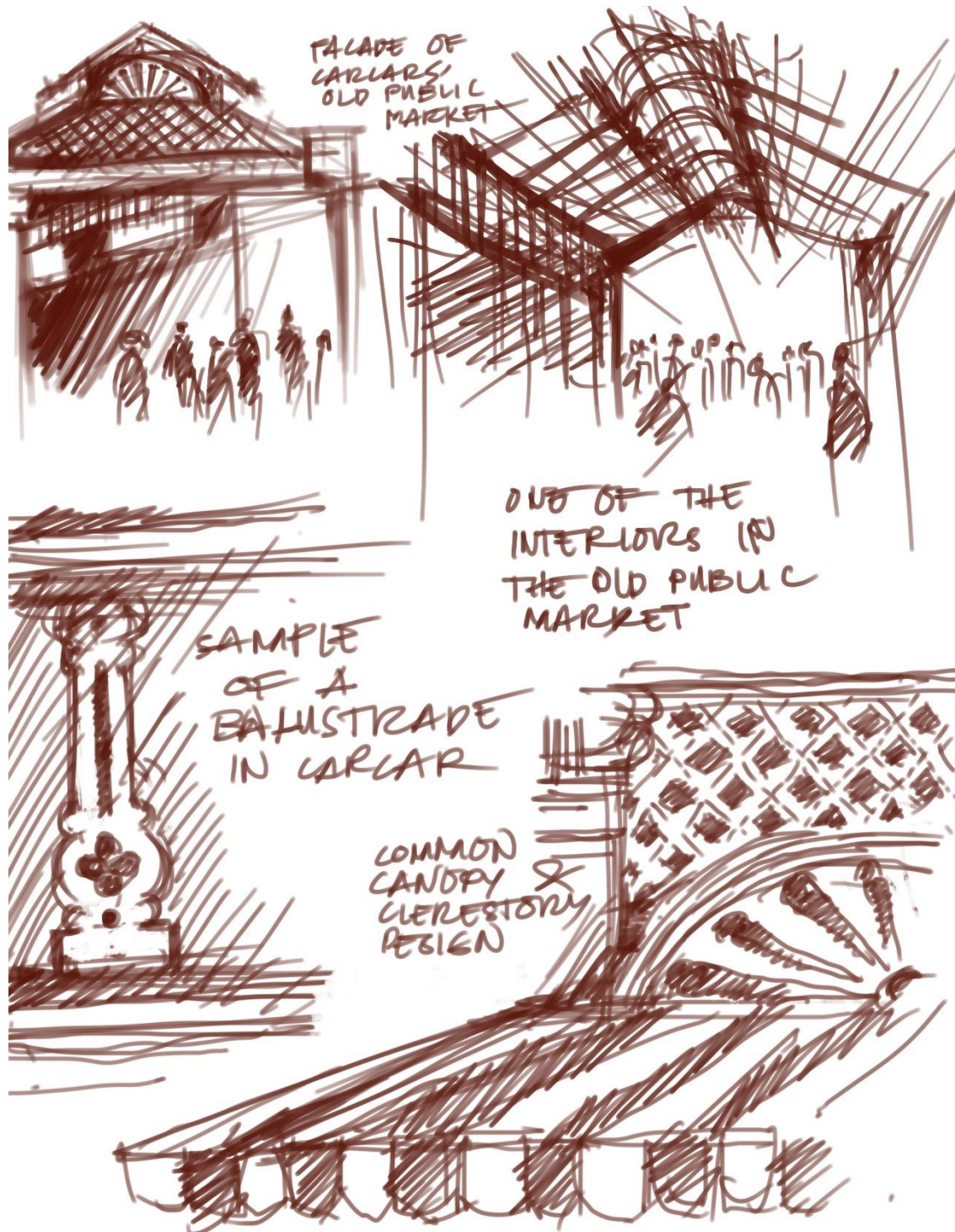
The variation in the precipitation between the driest and wettest months is 147 mm throughout the year. The temperatures vary by 2.3 °C. This table indicated how the temperature and humidity changes all through-out the months within a year.

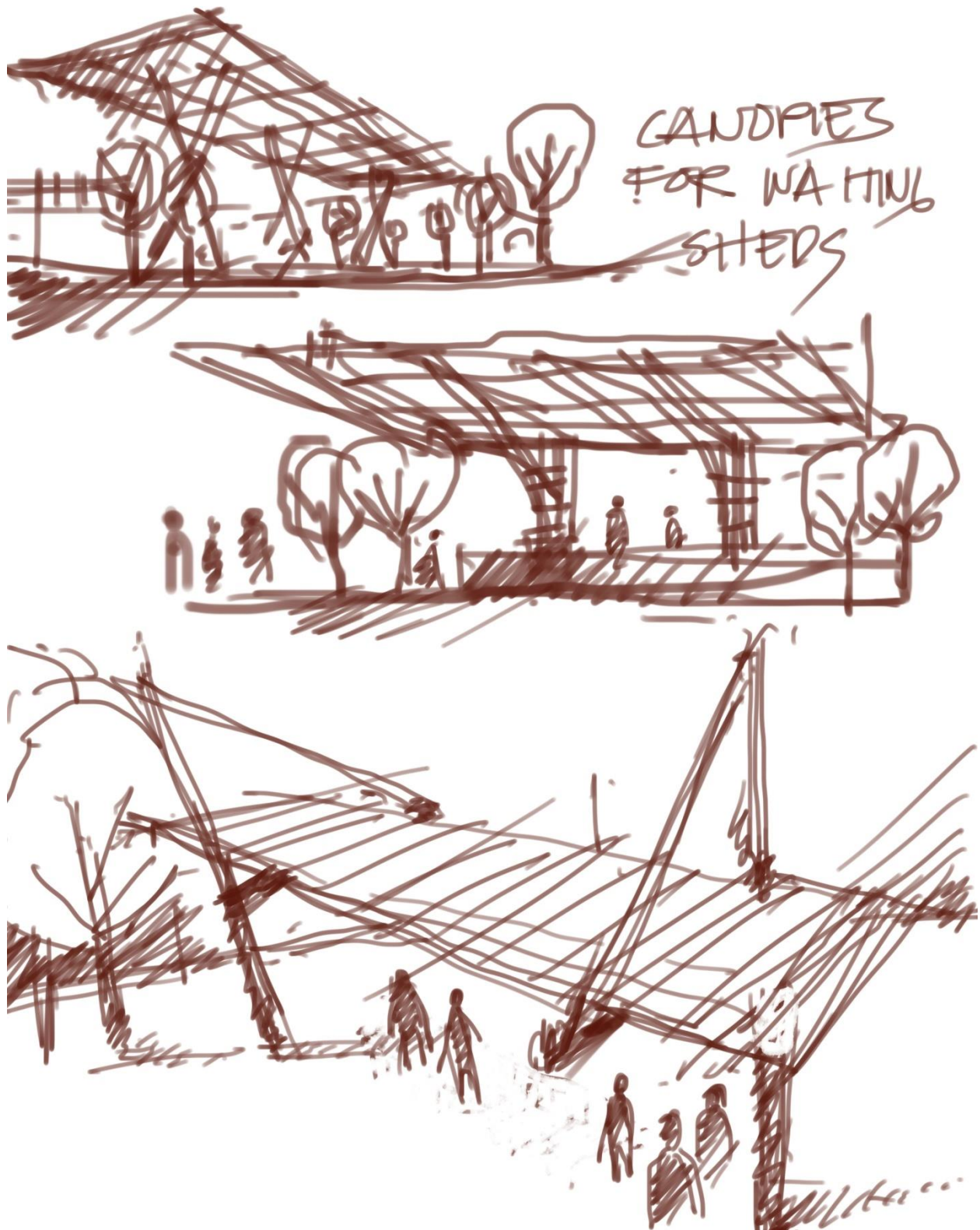
DESIGN CONCEPT



SKETCHES

PUBLIC MARKET





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